CLINICAL LECTURES

ON

PEDIATRICS,

DELIVERED IN THE VANDERBILT CLINIC DURING THE SESSION OF 1892–93.

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(STENOGRAPHIC REPORTS.)

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PREFACE.

Having been informed by the Editor of the ARCHIVES OF PEDIATRICS of his intention to collect these clinical lectures for publication, I beg to suggest that they do not claim to furnish complete treatises. They are fair examples of the practical instruction given in the Children's Clinic of the College of Physicians and Surgeons, both with the merits and demerits of extemporaneous discourses. They are stenographic reports exclusively. Still, in spite of all these defects and shortcomings, I trust that many of the facts and hints contained in the little book will prove instructive and useful, and many of the cases reported and discussed will compare favorably with those which are made welcome in our medical journals.

A. JACOBI.

110 W. 34th Street, Dec. 25, 1893.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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First :—Delivered Oct. 5th, 1892. (Stenographic Report.)

Multiple Sarcoma. Hydrocephalus.

Multiple Sarcoma.—It has been my custom to show first the simpler cases at the opening of my clinical course, but we cannot always command our material just when we want it, and therefore I will not let this opportunity pass to show you a very rare case.

Here is a baby that certainly looks very sick, and at the same time exhibits an abnormal shape. There is a striking asymmetry between the sides of the cranium; there is a bulging over the outer part of the right frontal bone, a smaller one on the left, another large one in the occipito-parietal region on the left, and some smaller ones. There is a bulging over the alveolar processes above, on both sides. The abdomen is large, and there are many dilated veins crossing it. There is a tympanitic percussion sound, showing that most of the abdominal swelling is by gas. At the same time there is a circumscribed swelling on the left side which is solid to the feel. Does this tumor belong to one of the mesenteric glands, to the omentum, to the left kidney, or to the spleen? The tumor has the outline which the enlarged spleen would show; it extends from the normal location of the spleen downward and forward to the median line without interruption. There is dullness on percussion everywhere, no tympanites between the upper and lower end; but there is some tympanitic percussion found between the left kidney and the tumor. It is certainly the spleen. The larger tumor on the head, occupying the outer and upper part of the forehead on the right, is semi-fluctuating. This peculiar semi-fluctation is quite characteristic for large sarcomata, though they be not complicated with cysts.

The baby is twelve months old. The first tumor was observed by the parents three months ago, when it was nine months old. Yet it is very probable tumors existed

months before that. It is a peculiarity of congenital tumors that for a long time they are apt to remain dormant. That is particularly true of one class, namely, sarcoma. Yet even carcinomy may remain dormant and have passed. Indeed, it has been observed that a tumor present in infancy has sometimes remained in the same condition up to advanced age, and then grew very rapidly and proved itself a malignant growth. Cohnheim, one of the great pathologists of the century, believed that malignant tumors, whether appearing early or late in life, resulted from prenatal formation; that inasmuch as malignant tumors were of epithelial or cell character he believed the cell formation resulting in malignant growth was but the development of embryonal cells which had not undergone their proper and timely change into normal tissues. This embryonal origin of tumors appearing in later life cannot, however, be proven to satisfaction in every instance.

Tumors of various kinds may appear in infants. I have described a number cases (*Archives of Pediatrics*, vol. i., p. 65), and collected more, of congenital lipoma—not only encysted, as it is mostly found in the adult, but also diffuse, without any capsule. I have also described a number of cases, and collected about forty as early as 1884, in the *Transactions of the Copenhagen International Medical Congress*, of sarcoma of the kidneys in infants and in the fœtus. I have seen carcinoma of the kidney in the fœtus, one in the newly-born, and a few more cases have been described. Carcinoma of the liver of sufficient size to seriously interefere with parturition has been described in a few instances. Congenital osteoma has been seen now and then. Syphilomata, the result of hereditary syphilis, are by no means rare.

In this case I believe we have to deal with sarcoma. I conclude this from the fact that a number of the tumors are quite hard. If they were carcinoma, very probably they would be softer by this time, and being so numerous it is likely they would have destroyed life. From the fact that the tumors on the head and face are not of the feel of lipoma, and the further fact that the spleen is involved, lipoma can be excluded.

What can be done for the child? If we had to deal with a single sarcomatous tumor, as of the spleen, we might think of removing the whole organ. But where there are so many tumors as are present in this case, and it is probable that many of the internal lymph bodies are

affected which we cannot feel, we can hardly expect to do anything surgically. The one remedy which has proved of much utility to me and also to others is arsenic, commencing with small doses, gradually increasing. To this baby, if you thought at all of treating it, you would give half a drop of Fowler's solution three times a day, and slowly increase the dose as far as you would dare go, stopping when there was œdema of the eyelids or face, or vomiting or diarrhœa. In many cases you can increase the dose to four, six, eight times what you began with—always diluting the medicine with plenty of water and giving it only after meals. But to give arsenic with a view of doing this baby much good is a forlorn hope ; the baby will certainly submit to the inevitable. Still, in quite a large number of cases of multiple sarcoma, both in the young and the adult, I have succeeded in reducing the size of the tumors and staying, at least temporarily, the morbid process.

There is another medicine which yields some results, perhaps more in carcinoma, however, than in sarcoma. I refer to aniline dyes, which I may speak about more fully at some later clinic. Methylen blue has certainly done a great deal of service, particularly in cases of carcinoma. I do not know that it has cured any cases, but I know it has certainly prolonged life months, and even years, in a number. It may be given by the mouth, or in injections, and is generally well tolerated, particularly in pills and combined with small doses of either opium or belladonna. A child of this age would probably begin with four or five daily doses each of one-tenth of a grain.

Hydrocephalus.—This is a case of hydrocephalus which visited us first some time ago. At that time the child's head was large, as you see it to-day, and showed wide fontanelles. In the normal baby's head, while the fontanelles are open, you can count the pulse there better than at the radial; you can see the pulsations. But as soon as hydrocephalic effusion takes place to any extent this pulsation of the fontanelle ceases. So is was in this case. The child was very dull when it first came. It is now much brighter, the fontanelles are more nearly closed, the physical condition has much improved. It talks some, hears, but the mother says it does not yet see. The cause of the baby not seeing may be different. The eye, the brain, or the optic nerve, may be abnormal. The reaction of the pupils to light seems to be normal. Still, part of the retina may be atrophic. I have now and then seen

restoration of the intellectual and muscular functions in hydrocephalus, yet inability to see remains. This might be explained by the fact that there was degeneration in the optic nerve which persisted, or an effusion in the sheath of the nerve which was not absorbed, or though it were absorbed after all, had meanwhile destroyed the nerve structure by pressure.

Here is another baby with a large head. It was the fourth product of conception, and was born at the eighth month, the others at a still earlier date. My assistant says, when asked if there is a history of syphilis, that when he saw the child a month ago the hands were scaly, and there was the story of three miscarriages, which was all the evidence of syphilis which he could obtain. You will observe that the child's right pupil is normal ; it is large enough, and contracts and expands. The left pupil is fairly large, but it does not contract, and is drawn to both sides. The eyes are in constant convulsive motion now and then, and again they are quite steady. This constant convulsive (horizontal) twitching of the balls is called nystagmus. It may be due to attempts of the baby to fix the eye-balls in certain directions without having a sufficient muscular strength to steady them. The eye, in which there has been iritis with permanent adhesions, certainly does not admit the rays of light as freely as the other one does. There is also strabismus here. Even normal babies when quite young have some strabismus. While they have strabismus they do not see so well, for they are not able like an adult to shut one eye for the purpose of avoiding double vision. Thus there is in some infants always an uncertainty in the process of seeing, and this uncertainty sometimes produces nystagmus. In a number of cases nystagmus in babies is due to attempts at coördinating the undeveloped muscles of the neck. For instance, the baby while lying on the back tries to hold the head in one direction, but the muscles of the neck may be unequally developed, the head shakes ; meanwhile the baby tries to fix the object with its eyes, and nystagmus develops as a consequence. But as a rule nystagmus is the result of cerebral disease. Now and then it has been found connected with a tumor, but usually with some meningitic process—either a simple inflammatory meningitis, or a meningitis connected with infectious disease, such as syphilis.

This baby's head is rather large, the fontanelle is still rather wide, but I can cover it with my two fingers.

The veins on the head are dilated ; as the external vessels so are the internal also large. Such large veins always indicate insufficient circulation. They are not infrequently connected with internal venous hyperæmia and hydrocephalic effusion. The baby has been developing very slowly. The few teeth which it has been making are breaking down already, so that the nutrition is certainly very poor. Its antecedents are very bad. The mother miscarried three times before it was born, and she carried it only eight months. When first brought here there was an eruption on the palms of the hands and soles of the feet. What could be more positive of hereditary syphilis. The same eruption found all over the body may mean nothing, but when confined to the soles and palms it means syphilis. Particularly is that the case with the newly born afflicted with pemphigus. Pemphigus is a superficial inflammation, forming large vesicles with serum that raises the epidermis. Pemphigus may exist in the newly born as a result of hot bathing, or a hot bed, or embrocations. In that case it would not be confined to the soles or palms. With the history of syphilis, which is rendered more probable yet by the repeated occurence of miscarriages present in this case, the hydrocephalus can be attributed to the disturbed circulation brought about by the disease. The treatment would, then, be principally anti-syphilitic.

Hydrocephalus means the presence of "water" in the brain or in the cranial cavity. The serum may be either in the ventricles, or it may cover the surface of the brain. Sometimes it forms great lakes, amounting to eight, sixteen, or more ounces. Sometimes the accumulation of serum is so excessive that the bones will be crowded against the scalp, and local gangrene of the surface will be the result. I have seen such cases. The pressure of the bones against the skin compressed the blood vessels, circulation was cut off, and gangrene resulted. In all cases the scalp, being expanded, is thin, white, and more or less bald.

In most cases, hydrocephalus is either congenital or acquired early. When it is congenital, the brain is never fully developed, while the skull may be too large, or normal, or too small, at birth. Such a case may be the result of an embryonal inflammation, though no positive evidence of it can be found. The ependyma is often found thickened. The serum contains but little albumen, about one-tenth of a per mille. Many such cases have been attributed to the obstruction of the aquæductus sylvii, or

to that of the foramen magendie ; in others they have been found normal. Inebrity and syphilis of the parents have been charged with producing congenital hydrocephalus. It is often found in numbers in the same family.

Acquired hydrocephalus is inflammatory in most cases ; that appears to be proven by the condition of the serum which—very much like that of transudation and exudation —contains one per mille and much more of albumen. It is the result of interrupted circulation, for instance, by the obstruction of the venar magna Galeni or the sinus recti, brought about by exudation or by tumors, or by slow circulation through chronic hyperæmia depending on general rhachitis. In a number of cases it has depended upon the presence of a tumor which has compressed a large vein, thereby giving rise to an effusion of water. In many cases, however, it is an inflammatory product, and the earlier it occurs, say during fœtal development, the more detrimental are the effects. The immature, soft, and flabby brain is compressed and injured or destroyed. I have seen a whole hemisphere wanting, the meninges being filled with absolutely nothing but water. In a number of cases the lateral ventricles are filled to such an extent that while the head is very large, the brain is atrophied, and sometimes nothing is left but a thin layer of cerebral tissue. These are the worst cases ; as I said, the sooner the process begins the worse they are. There are other cases, and this one here may be one of them, in which there is an anomaly of nutrition in consequence of an abnormal condition of the blood-vessels. Syphilis affects the blood-vessels, particularly the arteries, in such a way that their wall, particularly the intima, is thickened, thickened to such an extent that the circulation is impeded, and the result is either abnormal nutrition, destruction of cerebral tissue, or hyperæmia and infusion. In a number of cases of hydrocephalus there is insufficient development of other tissues besides the brain. The bones, for instance, will be found very thin. Not that they have been absorbed again from pressure, but that they were built so from the beginning. You know that there is a difference in the formation of the organs in different people. There are not two gentlemen here who have the same sort of skin, the same color of hair, and so on, or who have the same thickness of the cranial, or other bones. So it is in babies ; the bones are by no means alike. In some, the cranial bones are very thin. All the other tissues may be thin, especially the connective-tissue system and that means also the blood-vessels. When the

blood vessels are very thin they are more apt to give rise to effusion. As you can well imagine, a boot made of thin leather will be more likely to leak than a good stout one. Thin-walled blood vessels, particularly those poorly covered with endothelium, will give rise to effusion much more readily than well-developed ones. So this absence of sufficient plastic tissue in the bones, and in the tissues generally, is very probably a frequent cause, if not the most frequent one, of congenital hydrocephalus, partiularly when it can be proven by absence of brain tissue that it has formed very early in life.

When it comes to treatment, you can do much more for those that are acquired than you can for those which commenced in fœtal life. When the commencement was in early fœtal life there is very little brain tissue, and almost every one of such cases will slowly die. Acquired cases may be benefited, particularly when they go with rhachitis. Rhachitical bones of the cranium when soft and succulent can be cut through easily and blood will ooze forth ; the same is true when you cut into the dura mater, showing that the veins contain considerable blood. The sooner you can relieve the general rhachitis in such cases the more hope will there be of relieving the hydrocephalus. Congenital cases are different, and for them a number of different things have been tried. The tincture of iodine, iodoform ointment, and vesicatories have been applied over the cranium, all to no purpose ; the iodide of potassium has been given without benefit, for where there is no brain there can be little response, new effusion will take place all the while, and the result of treatment is very insignificant. The same must be said of vesicatories, purgatives, and diuretics.

It has been proposed to tap the brain. A number of recoveries have been reported from this practice. When you have to deal with a large accumulation of water there is always a temptation to run the trocar in and let it out. There are a few cases on record that got well after such treatment. But as a rule when a man has done something which is promising of success he publishes it, and when he finds, after a year or two, that he was quite mistaken, he is not quite so anxious to publish the fact that he was mistaken. In some of these cases of puncture in hydrocephalus, the result was published after a month, two months, six months, and in some after a year. Whether there was a return, we are not told. Those that are positively known to have been cured by an operation

are not, however, very numerous. I can not say that I have ever succeeded in curing one by this method, with or without the injection of iodine, which has also been proposed and practiced.

The aseptic trocar is introduced where you can not hit a sinus, say a little to the right or left of the median line, and a certain quantity of the hydrocephalic fluid is allowed to escape. You should be sure not to remove too much of the fluid. From one to two (rarely three) ounces are sufficient. While the fluid is escaping the cranium must be compressed, for you can very well imagine that when you relieve the pressure from inside, the blood vessels will at once dilate and hæmorrhage may take place. Not infrequently when you empty even the pleural cavity too suddenly the result is hæmorrhage, simply because the blood vessels, which before had been compressed, are relieved of that pressure, they dilate and blood escapes from a weak point in the walls of the vessels. The same thing has happened in the brain. So, use compression with your hand, or with a bandage, while you allow the liquid to escape. Having withdrawn a small amount, withdraw your instrument, but keep up the compression. The child will hardly cry except when you plunge the trocar in; it will look quite placid, and all will be well for a few days, and then the cranium will be likely to swell again, more effusion taking place in spite of your compression bandage, and you will have to repeat the tapping. It is always expected to be done a number of times. There is one peculiarity of such tapping which I noticed not very long ago. When the fluid is withdrawn there may be so little irritation as not even to cause the child to cry, there is no fever afterward, no reaction whatever, still the contents of the cavity change. They appear to assume more and more the character of an inflammatory product. An inflammatory exudation, as you know, contains a good deal of albumen. I have known the quantity of albumen in the hydrocephalic fluid to increase eight times within a week after tapping. Although then there may apparently be no inflammatory reaction, yet the albumen increases, and the condition is not a promising one.

If the baby be syphilitic, and the hydrocephalus result from that, it is probably better off, as it may respond to anti-syphilitic treatment.

[The following remarks on hydrocephalus were added at the next clinical lecture, October 19.]

We were on the subject of hydrocephalus at our last clinic. Here is another case. It does not present anything unusual, but I wish to remind you of the fact that this is a very difficult condition to treat, and many cases have to be managed according to the cause of the hydrocephalus. At first sight this baby appears to be fairly well formed, but when you study it more carefully you find the epiphyses are large, the legs are a little curved, the head is very large, and rather square, facts which point toward rhachitis. While the baby looks intelligent, yet the head is larger than appears to be normal. A baby of twenty months ought to have a head of about eighteen inches in circumference, perhaps even less if a girl, as this one is, but here the circumference is twenty inches, about three inches more than usual. Here the fontanelle is pretty large, whereas in most babies it is closed about the sixteenth month. There is no question about the hydrocephalic character of the head, but the question is, How much fluid is present? The pulse can be felt at the fontanelle, which shows that there cannot be a great deal of fluid. It has not interfered much, if at all, with the intellect; it has not given rise to contractures or paralysis. How is its presence to be explained in this case?

Rhachitis, when it affects the cranial more than it does the rest of the bones, will give rise to general hyperæmia of the cranial bones; hyperæmia of the dura mater, effusion into the dura, pia, and the brain, and now and then lead to meningitis. With effusion these cases are most amenable to treatment. When taken in time they may get better; they may even get better spontaneously. Hydrocephalus may get well to such an extent as to leave a perfectly intact child. Imagine, for instance, you have a large rhachitic head, with abnormal conjestion of the head and brain and consequent effusion, and the case gets well. Then there is left a large head, a very considerable blood supply, which at one time was excessive. Now, a good supply of blood with restored circulation mean good nutrition. So you will not infrequently see that children, who formerly were rhachitic, having a large, square head in consequence, are the best scholars at school and become not infrequently the best minds of the nation. Had they been a little more rhachitic, and in a position not to receive good care when children, they might have been half demented, or died idiotic, or in meningitis while young. You see the relationship between a high order of intellect on the one hand and idiocy on the other is

very close. A little more or a little less congestion and effusion make all the difference in the world.

Now, here is a child with a large head, a cranium that ossified in the course of time, though late. There is some effusion; what can we do for it? We spoke before about tapping. As we see, the effusion is not great here, and tapping, therefore, is not indicated. But if there were a greater accumulation of water, the bones being mostly ossified, you could not readily compress the skull as the fluid was withdrawn, and a vacuum would result which must be filled, and it would be filled by a determination of blood to the cerebal vessels, and hæmorrhage would be more than likely to take place.

This baby is getting well spontaneously it seems. General anti-rhachitic treatment, good air, some farinaceous food with his milk, plenty of beef and eggs, some cod-liver oil, some iron, or hypophosphites with iron, would certainly do good. You know, also, to what advantage we have used phosphorus in cases of rhachitis; this child would take about one-fiftieth of a grain daily. That would mean two minims of the oleum phosphoratum of the Pharmacopœia, or thirty minims of the liquor phosphori, or sixty of the elixir phosphori of the National Formulary. The head will become somewhat larger, but not much; if the baby should have in the future a head measuring two, three, or even four inches more in circumference than at present, it may result in no harm, certainly not if it be filled out with cerebral substance.

Second:—Delivered October 19, 1892.

Hypospadia, Rhachitis, Chronic Pneumonia, Angiomatous Tumor of Face, Spinal Paralysis.

Hypospadia.—This baby is seven weeks old, and has been brought to the clinic because there is something abnormal about the external genitals. As you see, there is apparently a very large clitoris and immense labia majora. When we come to examine the case more carefully we find a pair of testicles, one on each side, in what are apparently the labia majora. We also find that the raphe of the scrotum resembles a constricting band; that the penis is short and drawn down so that it looks like a large clitoris. We also find that the opening of the urethra is on the under surface of the penis at the fossa navicularis.

Early in fœtal life the urethra consists of different parts (as does the intestine), which afterward become united.

The urethra is formed from outside and inside, the two parts meeting behind the fossa navicularis, but sometimes they fail to meet and may result in an obstruction, though rarely. When this happens the urine will break through at the weakest point, which may be at the end. But that is not the most common form of hypospadia. The spinal cord, the abdominal walls, the intestine, etc., are originally patent in the median line, forming an open groove, and at a later period in embryonic life become closed. Sometimes they do not close. If a part of the abdominal wall does not close in the median line, we may have a congenital umbilical hernia, or lower down an opening into the bladder. If the whole bladder does not close anteriorly, its posterior wall protrudes and constitutes what is called exstrophy of the bladder. In bad cases the symphysis pubis may also remain divided and part of the bones undeveloped.

In the case before us we have to deal with a condition in which the lower wall of the urethra did not close properly. When the union takes place to only a limited extent, the opening is a large one, and may be found back even as far as the perinæum. In our case it is between that point and the fossa navicularis. The opening of the urethra is not affected alone, the penis itself is drawn over for want of sufficient development of the cavernous tissue. As long as there are no erections that makes little difference, but as soon as erections take place the penis is bent down and becomes painful and annoying.

As the baby is only seven weeks old I would suggest that it be let alone for the present. An operation will be easier to carry out when it becomes older.

Rhachitis.—Here is a baby four years of age whose head looks as though it were not so old, while the belly looks as though it might be much older. The legs show a marked curvature outward, allowing enough room for a little dog to pass between. The epiphyses as compared with the diaphyses are large. These bow-legs are the result of rhachitis, of which I mean to speak to-day only in reference to its connection with the intestinal organs. The large belly is due to the same cause. Rhachitis does not mean simply a disease of the bones, it means also faulty or insufficient development of the muscular and even of the nervous tissue. In a number of cases rhachitis begins with insufficient muscular development, and thus we are able to account for the fact that many babies who begin to suffer when two or three months old with consti-

pation, do not develop other symptoms of rhachitis until later. This baby has a very big but very soft belly. There is no tumor of any kind. The veins over the abdomen are large, there is tympanitic percussion sound all over, which means gas, either in the peritoneal cavity, or, as in ninety-nine times out of a hundred, in the intestine. The gas is formed in the intestine from imperfect digestion, and it is retained there because the muscular layers are not sufficiently developed to expel it. Besides, the abdominal walls themselves being flabby, there is no pressure from without to aid in getting rid of the flatulency inside. Besides, no absorption of gas is taking place.

The head is normal enough, though a little inclined to the square form.

If we had to deal only with sufficient development of muscular tissue in the abdomen and intestines, we could benefit the baby by resorting to massage and friction, friction with the dry hand or by rubbing the abdomen with alcohol and water, or oil. The massage, however, would be the principal thing, and would act by stimulating the muscles. Electricity might do a great deal of good, so also would strychnia. A dose, say, of one one-hundredth of a grain of the sulphate of strychnia, three times daily, would be very effective, but something else will be required. We are told that when the boy was first brought to the clinic he was being fed on weak coffee, sometimes a little milk and bread, and getting that irregularly. There was a gastro-enteritis. Now, it is a very lamentable thing for a boy of four years to be fed on very little milk, very much coffee, with vomiting and diarrhœa. We have here a case of insufficient and faulty nutrition depending upon faulty alimentation, which is a sufficient cause of rhachitis The rhachitis of the bones seems to be only secondary, and is certainly of minor importance compared with what is going on in the abdomen. The improper feeding would account also for the gastro-intestinal catarrh with diarrhœa and vomiting. It would result in the formation of gas; in insufficient nutrition of the muscles; in rhachitis.

The treatment must be not only strychnia for the stimulation of the intestinal muscles, but also improved diet, which shall improve the condition of the mucous membrane of the alimentary tract and the general nutrition of the body.

In selecting food for such a child we must not take our own habits as a guide, for many of us eat too much and of more things than is necessary. If most of us would reduce our diet one-third we should be better off. Children, as a rule, eat very simply and uniform, and thrive best when they are allowed so to eat. A child at that age might have a piece of beef or mutton once a day; it might have one egg a day, in some shape or other, but not hard; it might have a pint to a quart of boiled milk; it might have some barley, rice, oatmeal, or farina with the milk—and that is all it would want.

A baby fed in that way will thrive. Those babies that are costive might have more oatmeal, those that have a tendency to diarrhœa might have more rice or barley with their milk. Fruit will do no harm to older children, particularly boiled fruit. A piece of orange in the morning or after meals, a piece of sugar or two in the course of the day or plain candy, frequently is not only pleasant but useful. But all that depends on the condition of the stomach and general state of the baby. In a case like this we must try to counteract the tendency to fermentation in the intestines. Resorcin, or naphthalin, or salol, or salicin, might be useful, or large doses of bismuth might be given from time to time. If you should give the baby naphthalin he probably would object because of the bad taste. Resorcin is easily taken, it dissolves readily. Bismuth has no taste at all. This baby might take, an hour after each meal, three or four grains of subnitrate or subcarbonate of bismuth with a half or two-thirds of a grain of resorcin. If there were any tendency to diarrhœa I should add to that some prepared chalk, if any tendency to constipation add two or three grains of calcined magnesia.

We have here a similar case. A large stomach, large epiphyses; but the latter appear more prominent than they really are, owing to the thinness of the integuments.

Chronic Pneumonia.—This baby gives you the impression at a glance of profound anæmia; it looks exceedingly pale. There is a moaning respiration, which is always indicative of some trouble in the respiratory organs. There is a spasmodic contraction of the diaphragm, which shows that the respiration is impeded. The paleness of the lips and general pallor point to marked anæmia, and probably anæmia of long standing. There is a history of cough which has lasted since the baby was six or eight months old, and it is now two years and four months old. There

is a history also of expectoration of a purulent character. It has been reported to me that the expectoration was examined, and that no tubercle bacilli were found; that it consisted principally of pus. Sometime ago the baby would expectorate about a half teacupful at one time. That is certainly a large quantity, and must come from a cavity. The cavity may be in the pleura; it may be a local or general empyema which has perforated into the lung. It may be in the lung, and if there, it may be of two different characters at least. It may be the result of an abscess, that abscess being either tubercular or simply inflammatory, or it may be due to dilatation of a bronchus. When a bronchus becomes dilated it may hold a great deal of liquid, an ounce or a number of ounces. Sometimes the fluid which it contains is very fetid if retained long. When the bronchus becomes filled, and an attack of coughing sets in, all the muco-purulent fluid may be discharged at once. So that in a number of cases it is very difficult to make the diagnosis between dilatation of a bronchus and a pulmonary cavity.

A pneumonia may terminate in an abscess. Such an abscess when lined with a thick pyogenic membrane may not lead to pyæmia or hectic fever at all, just as an abscess may exist in the subcutaneous tissue and produce no very bad consequences. Located, however, in so vital an organ as the lungs, the pus cavity would, of course, be more dangerous than if it were subcutaneous. There are pnemonias which sometimes result directly in dilatation of a bronchus. An interstitial pneumonia, located as it is in the cellular tissue of the lung, not in the alveoli, may run for weeks and months, and finally end in cicatrization and retraction of the whole mass of bronchial tissue with more or less dilatation of the tube walls. There would be an opportunity for the accumulation of a large quantity of muco-pus. In after years, if the patient continues to live, there will be retraction of the chest wall. You will sometimes meet with men who have a chest retracted on one side with diminished respiratory murmur, sometimes bronchial respiration and bronchophony and dullness on percussion. In them, finding these peculiarities under the clavicles, you may make a mistake and suppose there is tuberculosis when it is nothing but the results of a pneumonia of childhood. I warn you of this possibility now because it is the first impressions which one gets in his medical career that stick best.

Before examining the baby's chest, let me call your attention to the fingers. The last phalanx of each finger is large, has a clubbed appearance, and is bluish. Clubbing of the fingers is present when there is chronic interference with the circulation, therefore you will see it in chronic heart disease, in emphysema, in tuberculosis. It is due to interference with the circulation in the distant parts, ending in dilatation and hypertrophy of the small blood vessels and increase of the connective tissue.

On examining the chest we find some dullness over the left scapula and diminished respiratory sound. The baby has had a pneumonia which has lasted twenty months. There is no emphysema, no heart disease; simply a chronic pneumonia. You can convince yourselves that (1) there is not much dullness on percussion; (2) that the voice of the baby is directly under your ear; (3) that there is bronchial respiration all the way up from the base of the lungs; (4) that there is a cavity in the lower lobe of the affected lung. In the adult a cavity connected with tuberculosis is usually in the upper lobe; in the child t is frequently in the lower lobe, but that does not prove that here it is of tubercular origin. If it were tubercular, the probability is there would have been hectic fever long ago and also a fatal termination.

There is a peculiar feature about the case to which attention should be called. That is a fetor about the breath, which is said to have been worse than it is now. In a baby, that means as a rule, where no cause exists in the mouth or throat, gangrene of the lung; gangrene of pulmonary tissue from which the circulation has been cut off. That is more likely to occur in babies than in adults, for the pneumonia of adults is usually of the infectious or fibrinous type, attacks one lobe and runs its course in five to seven days, terminating in recovery or death. In babies, on the other hand, the pneumonia is mostly catarrhal, lobular, numerous hepatizations may occur, which means there may be twenty or more centres of the pneumonic process. When the infiltration is very dense, and the circulation is cut off from intermediate parts, gangrene may take place.

For the present I recommend to give the child four or five grains of the sulphate of quinine, or ten grains of the tannate of quinine, in the course of the forenoon to meet the afternoon exacerbation of the fever; a grain of Dover's powder for the night if there be much cough and restlessness, and in the course of the twenty-four hours an emul-

sion containing two minims of a good fluid extract of digitalis, and from five to eight grains of camphor.

Angiomatous Tumor of the Face.—This baby has an angiomatous tumor of the right side of the face. We are told that it had been operated upon seventeen times in England, and, judging by the numerous scars, we infer that the actual cautery was used. We have employed the cautery six times, always, however, through the same opening, thereby avoiding too much deformity. When the baby was first brought here the mucous membrane of the mouth protruded, was a dark purple in color, while the face outside formed a tumor much larger than its two fists; it extended from the right angle of the mouth to the ear.

Vascular tumors and vascular degeneration seen in children and adults are, as a rule, congenital, and mostly very small at birth. Usually they are simply marks, so-called mothers' marks, and very superficial. They are oftenest seen on the face, head, chest and sacrum, now and then on the extremities, sometimes on the mucous membranes, and sometimes we find angiomatous degeneration of the liver, spleen, kidneys. As already stated, they are usually on the surface, small, not raised, or but little, above the skin at birth. They consist of blood vessels which are too numerous, or too numerous and at the same time degenerated. Usually it is the capillaries, or small arteries, sometimes small veins. The color is usually a bright red; if not, the paler blue depends on the admixture or preservation of connective tissue. The color may also be a little more red or more blue, according to whether the arterial or venous blood predominates. Angiomatous tumors are apt to grow unless they are situated over bone. When located on the forehead or head they may disappear spontaneously, because of the pressure upon the vessels from growth of the skull. In the case before us, which was not located over a bone, but in the soft tissues of the cheek, the tumor was very small in the beginning, but it went on to grow, and now has been operated upon twenty-five times, and it has not disappeared yet.

In a number of cases you will have to deal with vascular tumors which consist of blood vessels only; while in others you will find a good deal of connective tissue mixed in. The latter are not so arterially red. Some cases are from the beginning complicated with sarcoma, adenoma, or fibroma. I have seen a number of cases in which a small angiomatous tumor was situated in the

subcutaneous tissue, extending outward to the skin, the size of which could be diminished to a slight extent only by pressure. These are the cases which, when the child grows up, sometimes result in sarcoma or another malignant growth. When you find such a tumor, partly vascular, partly solid, it is best to remove it to prevent its change into a malignant pseudoplasm.

Regarding treatment, removal by excision is indicated only in certain cases, those in which the tumor is pedunculated or can be rendered so by passing needles through its base, or those which appear more circumscribed than diffuse.

By the latter method, passing needles through the base of the tumor, crossing one another, and then constricting with a ligature, the tumor may fall off after some days. The surface should be disinfected with carbolic acid, creolin, or other agents. Another very effectual way is the use of the actual cautery in the manner that it was employed in this case. The scars here, although so numerous because of the different points of entry made when the patient was treated in England, are very superficial and smooth. But they ought not to have been so numerous.

Caustics can be used, fuming nitric acid, bichloride of mercury, etc. Take, for instance, one part of bichloride, eight or ten parts of collodion, one application of which will usually suffice if the nævus be on the head.

These are the only methods which I should recommend, although a number of others have been employed. You may read in some books of treating nævi by vaccination. It is true that cicatrization following the vaccine ulcer may obliterate the nævus, but it may do too much, or it may do too little. Hydrate of potassium, quicklime and potassium (Vienna paste), have been recommended. Their effect is an uncertainty. Sometimes it goes very deep, and there is more loss of substance than is desired. It has happened to me to have it eat down to the bone and destroy periosteum. In most cases the actual cautery is best. Injections of perchloride or subsulphate of iron must not be employed. They give rise, possibly, to embolisms. I have seen a baby die of cerebral embolism from that cause.

Infantile Paralysis, Spinal Paralysis, Poliomyelitis.— This boy is nine years of age. You notice something wrong with his right arm. It hangs limp at his side. There is passive mobility in all directions, but no voluntary movement. There is wasting; the arm is thin, the

fat has disappeared and the muscles are thin and flabby. At the shoulder joint is luxation, with a depression into which you can place your finger. It cannot he an ordinary luxation retained by muscular force, for the arm can be moved in all directions.

We have, then, luxation of the humerus, a very thin arm, especially the humerus, and the muscles over the shoulder joint are emaciated. There is, evidently, paralysis, and it must be due to an affection of the nerves or of the muscles. Undoubtedly, in the light of the history of the case, it is in the nerves, not in the muscles. The nerve, having become paralyzed, the question arises whether it is peripheral or central. If central, the lesion must lie in the cervical portion of the cord; if peripheral, in the brachial plexus.

It is stated in the history, that when the child was a year old the mother noticed one night that it cried very much, and next morning could not move that arm, and has been unable to move it ever since. It was well, except for this inability, next day. Now, that does not mean a neuritis; it means a central disease; a cord disease.

This case is a rare one, which you will appreciate better after something has been said about the generality of such cases. Now and then babies of a year, or a little older, sometimes younger, will be affected quite suddenly with paralysis. Either they go to bed perfectly well and are taken up in the morning paralyzed, and that is all there is about the history of the case; or they will cry, be feverish, are sick two or three days, and then it is noticed that they are paralyzed. It may be in one, in two, or in three, or all four of the extremities. Or the paralysis may be noticed after the child has had pneumonia, or scarlet fever, or some other of the infectious diseases. Usually it is a lower extremity that is affected, and when the baby is expected to be well of the pneumonia, or scarlet fever, it is found to be paralyzed, and nobody can tell on what day it took place. But the large majority of cases are those in which there are no premonitory symptoms; no fever; simply taken some night with paralysis, nobody knows how. Usually the paralysis is most marked the first day. After five or six days improvement slowly takes place. That may go on three to eight weeks, then the condition remains stationary. But in spite of the fact that at first the whole limb seems paralyzed, usually it is only a part that remains affected. If it be the lower extremity, the exten-

sor muscles of the leg are likely to be most affected, and after a while the predominance of the flexors produces so-called paralytic club-foot.

The exceptional cases are those in which all four extremities are paralyzed; sometimes the two lower extremities are involved, and one upper; now and then there is a hemiplegia, not, however, including the face; now and then a leg on one side and an arm on the opposite side are involved. It is not common to have one extremity involved alone, and when you think it is so there has still been a slight impairment in another. In this case the mother is positive that only the right arm was affected, and we have every reason to believe it. That makes this case a very exceptional one.

Regarding the cause: the condition comes on suddenly, and for a number of years, when we knew less of infantile paralysis, I believed the cause was a sudden hæmorrhage in the spinal cord. Here in the cervical region and in the lumbar region, where these lesions mostly exist, there is a larger amount of cellular tissue surrounding the cord, and we might suppose hæmorrhage would more readily take place in those localities. But after all it is not hæmorrhage that produces this form of paralysis, it is a degeneration. Possibly in some few cases a slight hæmorrhage is the actual cause of such degeneration and, therefore, is the original cause of the paralysis. However that may be, the lesion exists in the anterior horns, which are motor and trophic, and involves the ganglion cells and thereby destroys both motion and nutrition. This has been proven at autopsies where a peculiar degeneration and atrophy of the ganglion cells were found.

Regarding treatment, when the case is recent, we have to deal with congestion; when old, we have to deal with cicatrization, anæmia, and atrophy in the interior column of the cord. Therefore the treatment of a recent case and that of an older case is not the same. If you could have seen the case during the period of restlessness and fever, antiphlogistic treatment would certainly have been indicated. A few leeches could be applied over the cord, and you would be justified in putting an ice-bag on for some time; you would also give a purgative, and correct the circulation, if necessary, by digitalis, and administer ergot. Ergot will certainly affect the involuntary, the unstriped muscles; thus it affects the blood vessels. The vessels supplying the cord are very short, and although they would themselves be but little affected by the ergot, there

would be through its influence diminished supply through the larger branches from which they arise. I have never found ergot do the slightest amount of good in cerebral disease, whereas it has done a great deal of good in spinal disease,—the difference being that the vessels in the cord are very short and easily influenced from outside, while those supplying the brain are very long, and many have no muscular layers whatever, and are, therefore, not influenced by ergot. You might also use counter irritants, such as tincture of iodine; but in spite of this primary treatment, should you see the case early enough, what shall be done for the paralysis that remains afterward, say after two or three months?

In the first part of the disease, in my experience, neither the interrupted nor the continuous electric current will do any good. The time for electricity is when the hyperæmia has passed by and anæmia has set in. After some days the fat begins to disappear; then the muscles become atrophic, and electricity is indicated to keep up the nutritive process. The defective innervation is shown by the fact that first the interrupted current fails to produce a response; somewhat later, the galvanic current shows the reaction of degeneration, that is, a contracture will take place, but it is not instantaneous; it takes a little time before it becomes visible at all, and then only in installments. It takes a long time for the reaction of degeneration to wear off, if it does at all. Both the galvanic and the interrupted currents ought to be used daily for from five to ten minutes. Apply hot water or cold water and friction, also friction dry or with oil or alcohol. Internal medicines will not do much good. Strychnia is certainly a stimulant when given by the mouth, and keeps up the appetite and so on, but it does little or nothing for the paralysis. But given by hypodermic injection I have seen for years that it produces results when its internal administration was useless. This boy is nine years of age; he might receive a fiftieth of a grain twice a day into the tissue of his paralyzed arm, or if he could not be seen that often, get a thirtieth of a grain once a day. In these cases it is best to begin with the full dose and not waste time; if the amount is too great, it can be reduced. But never use strychnia in a recent case. This boy ought also to wear his arm in a sling, for it falls out of the joint by its own weight. The treatment must continue a long time, and may require years. Persistence will render good service, but you will rarely see even a mild case getting entirely well.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Third:—Delivered Oct. 19, 1892. (*Stenographic Report.*)

Scarlet Fever, Spina Bifida, Prolapse of the Rectum.

Scarlet Fever.—This little girl is about three years old, and the mother says was taken sick yesterday afternoon. She wanted to sleep, and put her hands on the stomach because of pain. The mother gave her licorice powder and she vomited twice. She was inclined to be costive, but the bowels have moved since. Yesterday she was chilly, but last night she was hot. She took only liquid food since, and did not vomit it.

On looking at the child there is no noticeable dyspnœa, so that it would seem the fever of last evening was not the result of any respiratory trouble. As she has been walking about, we may exclude any probability of joint disease, rheumatic or otherwise. The most striking thing is the fact that the skin is rather red, and the mother says it has been so since this morning. The tongue is also rather red, whereas its normal color is a pale red. In the eruptive fevers and severe gastritis the tongue is apt to be red because the epithelium has been thrown off, and this is especially likely to take place along the edges, and from there spread all over the organ. This baby's tongue is rather red, although in the middle there is a good deal of epithelium, perhaps more than usual. In the white fur a number of fine red papillæ are seen standing out, and in a day or two it is probable more and more will make their appearance as the epithelium falls off, so that the tongue will become red in the centre as it now is on the edges, and we will have the "strawberry tongue" of scarlet fever.

A number of small eruptions are seen raised above the skin covering the extensor side of the thigh, the hips, the abdomen and chest. If it spreads it will produce an erythematous flush all over the surface, peculiar to scarlet fever.

On the left tonsil, which is very much swollen, there is a gray discoloration at one point, while elsewhere it is red—redder than normal. Both tonsils are large, but the left one is the larger of the two and reaches the uvula.

This, then, is a case of scarlet fever at a public dispensary. While there is a great blessing in dispensaries, they are sometimes also a great curse. If that baby had not been observed at once after its entrance, it might have remained in near contact with other children for from half-an-hour to an hour. That takes place every day. There is whooping cough, there is measles, there is diphtheria, there is scarlet fever. Cases of infectious and contagious diseases come to the dispensaries all the time and remains from an hour to two hours, sowing the disease among other children to carry to their homes and spread it still farther. That is why it is impossible in New York in most cases to trace a given case of contagious or infectious disease to its original source. I have not the slightest doubt that benevolent institutions like this contribute a good deal to the spread of these diseases all over the city. So these institutions are not an unmitigated blessing. They are liable to spread physical diseases as they are sure to spread demoralization amongst the public which is tempted and too eager to take services gratis, though many of them be well able to pay for them.

This patient's mother says she has three rooms and three children; one of the children at home has already had scarlet fever, the other has not. I would advise her, if she desires to protect the seven-year-old child at home, to have this baby taken to the Willard Parker Hospital where she will be taken care of and be better off than at home. The case is one of utmost importance, both to the baby and to the community at large. But so far as the community is concerned, we will waive that subject for the present.

As to the patient, the mother says she gave her licorice powder and she vomited. It is not likely the powder had anything to do with the vomiting. It is very common for scarlet fever, as for many other infectious diseases to be ushered in with vomiting, sometimes the vomiting being repeated eight or ten times, or more.

There was no pain except an ill feeling at the stomach. There was fever. Then the eruption appeared. The rectal temperature is now 102° F. We have noticed in this case early participation of the mucous membrane of the mouth. The tongue is red, the tonsils are enlarged and red, and this redness will yet increase. But there is another appearance of the tonsil which is more important than the redness. It is the occurrence of a grayish membrane at so early a time. A grayish membrane in the fauces is of frequent occurrence in scarlet fever. When it comes on the fourth or fifth day it does not signify much, but when it is present on the first day it means a great deal. Although this baby is not very sick now, I look upon the case as a dangerous one. Where the diphtheritic or pseudo-diphtheritic membrane appears on the tonsils the first day it will spread within a very short time, and be likely to lead to general sepsis. In all probability within two days that throat if left alone will be gray all over. The glands about the neck will swell, and symptoms of general sepsis will set in. The fever may be very high or not. Sometimes in marked sepsis the temperature is quite low. I wish you to remember this in just such cases as this, though we feel like making a good prognosis because the baby appears to be strong and healthy. They run a very bad course if pseudo-membrane appears the first day. In a number of cases the membrane is that of what is now called real diphtheria, but in the large majority it is due to what writers are not now inclined to call so. The disposition at present is to call only such cases diphtheria as show the Klebs-Loeffler bacillus in the false membrane. The pseudo-membrane may have the same extent and thickness and general appearance, yet if it do not contain the Klebs-Loeffler bacillus it is spoken of as pseudo-diphtheria. Whether such a division is correct we shall see in a few years. What we can now say is that in not more than about sixteen per cent. of all cases of apparent pseudo-membrane of scarlatinous diphtheria can the genuine Klebs-Loeffler bacillus be found. In other cases the streptococcus or other micro-organisms have been met with. Again in a number of cases in which the Klebs-Loeffler bacillus was found the glandular swelling which is often enormous in diphtheria was not present, or was present to only a slight degree.

On the other hand, in many cases where the streptococcus has been found while the bacillus of diphtheria was absent, the glandular swelling has been very intense.

Thus, it would almost appear that we need not be so much afraid of a true diphtheria complicating scarlet fever as of pseudo-diphtheria, especially when the false membrane contains the streptococcus. After all as it is neither the streptococcus nor the bacillus that kills, but the ptomaines developed by them, it would be poor consolation to know it was not "genuine diphtheria" with its regulation bacillus that destroyed your patient.

As long ago as 1884 Gerhardt, of Berlin, called attention at one of the German Medical Congresses, to the probability that diphtheria was the result of different micro-organisms, so that we are not much farther advanced in understanding the causation of this disease now than at that time. That is about all that can be said of it today. There are pseudo-membranes; they contain fibrine, a few blood cells, more leucocytes, broken down epithelium, and on the one hand, a bacillus, and on the other a streptococcus. For the time being I prefer to retain the name diphtheria for all such cases alike. Moreover, it is claimed, particularly by Kursh, that the very same streptococcus is frequently found in common tonsillar angina, and is therefore not characteristic for any special kind of membrane. Thus you see, that after all, the finding of a micro-organism need not prove its etiological importance, and that it may after all be but to the secondary infection of, and through the medium of, the blood and the changed chemical and biological condition of the surface.

What is to be done with such a case? The baby has not a very high fever now. If the temperature were 104° to 106° F. some antifebrine, phenacetine, or antipyrine, with a stimulant, might be indicated. If that temperature had occured the very first or second day, it would have been safer to adopt such a treatment, for a high fever which breaks out suddenly is not well tolerated. A baby may not tolerate a temperature of 104° to 105° the first day, but be thrown into convulsions by it, whereas, after the fever has been present three or four days it may rise to 105° or 106° F. and cause no immediate bad results. Therefore, beware of following a rule of treatment based on the temperature alone. When a man tells you that if the temperature rises to 103° or 104° you must in all haste give an antipyretic, he advises you badly. It depends on the patient's condition whether he ought to have an antipyretic or not. Now and then a baby will have a convulsion when the temperature rises to 103° or 104°, and

such a patient ought to receive an antipyretic. Another baby smiles and laughs with the same temperature, and it is not at all necessary to burden its system with an antipyretic. The temperature here is only 102°, and the baby certainly does not require an antipyretic. It ought to have good cool air, at 65° F. or not more than 70° F.; it ought to be allowed to drink as much as it pleases, to take liquid food only. It might be given some alcohol, particularly, as the throat symptoms become threatening.

There is no more powerful antiseptic than alcohol in sepsis. In this case I would commence with it early. Probably no other medicine will be necessary so long as the baby is not very sick. You will meet with a great many cases of scarlet fever which will recover without a drop of medicine. Although this baby looks well enough now, I would not, however, leave it without medicine, for it will be very sick to-morrow, and still more sick the day after. If treatment is put off altogether at present, it may afterward prove too late to interfere. Sepsis will set in, there will be heart weakness which ought to be fought this very day. Alcohol will do something. In addition I believe it would be well to give a dose of digitalis now, and as the baby is four years old it might receive half a minim of good fluid extract every three or four hours, commencing perhaps, with a dose every four hours and increasing it to one in three hours if it seems best.

The treatment now advised is preventive rather than curative. You can not cure a case of scarlet fever; it will run its full course. You can prevent the heart from becoming too much enfeebled; you can prevent sepsis from taking place too early and from being too profound.

One thing which ought to be done at once in this case, was left unsaid. There is a membrane no matter whether "diphtheritic" or "pseudo-diphtheritic" on the tonsil; there is already a little glandular swelling. This latter is due to the irritation by the poison absorbed not so much from the tonsils as from the naso-pharynx. When you see a false membrane on the tonsil you may be led to suspect that the naso-pharynx participates in the process. If there be glandular swelling about the angle of the lower jaw you may be assured that the naso-pharynx is already affected. The glandular swelling is the result of a local infection. So, what you have to do first, is to disinfect the locality from which the infection is taking place. Disinfection can not often be made by local applications to the tonsil.

Suppose you should try to apply the tincture of the chloride of iron or a solution of nitrate of silver, you would have to forcibly open the mouth, run your swab in and touch the affected parts. The child would scream, struggle, and exhaust its strength, yet if there is anything which the patient requires to carry it through the disease it is strength; never, unless you have an older child or an adult to deal with who is willing to have the tonsils touched, try to make local applications with the swab for diphtheria. It is dangerous and I may say criminal, for you cannot succeed without exhausting the child. Again, you can not succeed in an unwilling patient without touching some parts near by which are still well, or which are not covered by membrane. In diphtheria or the so-called pseudo-diphtheria the epithelium at the point of local infection was vulnerable, and sore, and the mucous membrane in a catarrhal condition before being attacked by the infectious process. It is only on the tonsils where, according to Stoehr, the epithelia are partly separated from each other by distinct interstices, that diphtheria may take a hold without previous illness. To attempt to make local applications in the young patient you will surely break up epithelium more or less, and within twelve hours there will be extension of the morbid process.

But disinfection is desirable, and can be carried out in a way not to injure the surrounding healthy membrane, nor to exhaust the child. It can be done by spraying through the nose, or by gently injecting a small amount of liquid into each nostril. A syringe may be employed, or the liquid may be poured in from a spoon. It will come out through the other nostril or go down the throat. Carried out gently, babies do not mind this procedure much, and they afterward breathe more freely. In a case like this it is desirable that the disinfectant run not always out of the other nostril, but that it touch the throat and disinfect the surface there. This can be effected by closing for a moment the other nostril. If, instead of coming out through the mouth, it is swallowed, no harm will be done if the proper fluid be used. Carbolic acid is not appropriate, for babies object to it, and if swallowed in undue quantities it is likely to cause nephritis. If bichloride of mercury be used it should not be stronger than one part in from five to ten thousand of water, in which case a little can be swallowed without harm. Lime water may be used, or boracic acid in a three or four per cent.

solution, or salt water in physiological dilution 1-130. The object is partly to disinfect, partly to cleanse.

Frequently within twenty-four hours after commencing these nasal injections and applying them once every hour or two hours the swollen glands will be found diminished one half. In a great many cases the selection of the wash is of no account, provided the parts are really cleansed. Be always sure that the injected fluid does not reappear from the nostril you injected. It must return from the other nostril, or enter the posterior nares and pharynx. The latter must be aimed at in most cases.

We shall now dismiss the patient to her bed. It was my object to dwell upon the nature and treatment of the case such as it is now. To the general subject of scarlatina we may return when another case presents itself, or you may inform yourself in your text books on the main points.

Spina Bifida.—What first strikes our attention in the next patient, a baby of twelve weeks, is a curvature of the long bones, especially of the legs, but this is not marked, and is not more than what is likely to take place in the cramped position occupied by the baby during intrauterine life. It is probable that the limbs will straigthen and assume the normal shape after a few months.

After the clothes have been entirely removed we observe a tumor over the upper part of the sacrum and the lower lumbar portion of the vertebral column. Whenever you find an enlargement at any place, the first question which suggests itself is, what can be the nature of such a growth situated in that particular locality. It must pertain to some of the structures in that neighborhood, and here it must belong to the skin, the subcutaneous tissue, to the muscles or tendons, the periosteum, bone, or that which is beneath the bone—the membranes of the cord, or the cord itself. We notice that the tumor is not of the color or consistency of skin; yet a part of the covering near the edges is still normal skin, while toward the central and most projecting portion it has a shiny, almost transparent appearance, and a reddish hue.

It is situated in the median line and is about the size of a small orange; light pressure upon it is not painful. It has a cystic feel and seems to contain no hard mass or parts. We are told that it was quite small when the child was born; that all of it was covered with normal skin, there being only a small spot in the centre which looked brighter than the normal skin, and gives us the impres-

sion now of being a scar. There is nothing abnormal about the baby's feet, and both limbs are developed alike.

The case is one of spina bifida. That is a tumor-like protrusion from the spinal canal through an abnormal opening in the vertebral column. Usually there is want of development of one or more spinous processes, the tumor contains a liquid which is in connection with the cerebro-spinal fluid in the central canal of the cord, or in the meninges. When the swelling originates in the cord itself one-half or one-third of this is pushed before it through the opening in the bone. In this case we do not see anything of the kind, which is very much more favorable, as it indicates that we have to deal with a hernia of the meninges only. If the cord itself protruded, and was more or less destroyed, it would result in abolition of the function of the nerves supplying the extremities, and cause paralysis, atrophy, contracture, or deformity. In this case the feet are perfectly formed.

What will become of the case if it is left to its own course? The tissues over the tumor have already become greatly stretched and thinned, and doubtless in a short time would burst and let out the fluid. If this would take place only a little fluid could escape at first, but in a few hours it might result in draining off all the cerebro-spinal liquor, hyperæmia of the cord and brain, and death. That is the way in which a fatal result occurs in many cases of spina bifida. If you should puncture the tumor, a part of the fluid might escape and the opening close again, but the fluid would reaccumulate. Puncture and compression at the same time might lead to a good result. If the case were in an adult we might assume from the location of the tumor over the sacrum, that it was below the termination of the spinal cord, but in fetal life and childhood the cord extends lower, and in this case probably to below the tumor, so that whatever we may do, we must be very careful not to injure its structure or excite inflammation.

A number of cases have been reported in which the spina bifida tumor was treated by injection of a solution of iodine, iodide of potassium and glycerine. I will give this case some thought and will report to you in a week or two whether I consider it advisable to treat by this method. Meanwhile we will cover and protect the tumor with cotton and a bandage.*

*A week afterward the tumor was injected with 15 minims of the solution recommended by Morton containing 1 part of iodine, 3 of iodide

Prolapsus of the Rectum.—This boy, about four years of age, has been brought here on account of something protruding from the anus. There are several things which can protrude from the anus of normal or abnormal constituents above. In the baby the rectum is not curved as it is in the adult. The sacrum in the baby is almost straight and the rectum is, therefore, less well supported mechanically. The protrusion may be of two kinds, viz., one side of the rectum alone being pushed out, or the whole circumference of the gut protrudes. One chief cause of this is tenesmus and straining in consequence of constipation. As the hard masses reach the rectum, the membrane passes out with them and is constricted by the anal sphincter.

Again, the object which is seen protruding from the anus may be a polypus which grows from the mucous membrane. Another cause is want of proper development of the anal sphincter. In a number of cases this is found flabby, wanting in tonicity, so that the finger may be very readily introduced.

But the most frequent cause is the relaxation of the rectum and sphincter in acute or chronic intestinal catarrh. Where there is catarrh there is hyperæmia and effusion into the mucous membrane and muscular tissue, causing relaxation and prolapsus. This seems to have been the cause in this case, for the baby has long since had diarrhœa, and there is no other apparent cause. This may be treated locally as well as by promoting bodily health. Tenesmus may be treated with two or more daily injections of tepid water, the hypertrophied mucous membrane with astringent (alum) injections, in bad cases with the fuming nitric acid or the actual cautery, the paralysis of the muscular layers with suppositories or ointments containing strychnia or extract of nux vomica. Very bad cases may require the subcutaneous injection into the perineum of sulphate of strychnia.

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of potassium, and 48 of glycerine. Previous to the injection four scruples of the liquid contents were withdrawn. There was hardly any pain, and no disagreeable symptoms followed the operation; no pain, redness, or elevation of temperature. From week to week the size of the tumor decreased, the surface changed in such a way that the integument became more and more cutaneous, until after about four weeks the spina bifida was reduced to less than a quarter of the original size; and it became quite hard. However when a complete success appeared to be only a matter of a short time, the child's death was reported. No reliable account could be obtained, and no autopsy was held. Thus from what could be learned, the baby's death did not appear to be in any way connected with the spina bifida or the operation. A. J.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892-93.)

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Cracked Lips, Lateral Curvature, Pott's Disease, Adenitis.

Cracked Lips.—The first case is a baby of nineteen months which was nursed by the mother for thirteen months, since which time it has steadily fallen away. Evidently it has not been properly fed, but that for which the child has been brought to the clinic to-day is an open sore at the angle of the mouth which refuses to heal. The open wound at the side of the mouth is covered with a whitish membrane upon a granulating surface. The pseudo-membrane in this case might suggest diphtheria, but there is no reason to believe that such is its true nature ; for there is no other membrane anywhere else, though we be told this is of long standing. If examined under the microscope it would be found to contain albumen and fibrous exudate, some pavement epithelium, leucocytes, but probably no bacilli, perhaps streptococci or the numerous micro-organisms which are found everywhere. It will likely require some time for healing, as the child is in poor health and has a tendency to break the granulations by rubbing the face with the hands. The surface should be kept disinfected and clean, should be dried with absorbent cotton and treated with an ointment of oxide of zinc or bismuth, with balsam of Peru ; or with the dry bismuth subnitrate powder to be applied every few hours. Improvement of the general health will also improve the ulceration.

While waiting for the next case to come in, I wish to refer to a case you have seen previously.

A child was presented lately, nine years of age, which nineteen months before had had swollen knees. This

had recurred once or twice. When presented she was suffering from insufficiency of the mitral valve and hypertrophy of the left ventricle. For the endocarditis ice bags over the cardiac region were advised, while digitalis was to be taken internally, and it was urged that she be kept in bed a month without being once permitted to leave it. We are told she feels much better.

Lateral Curvature.—The history of this case, taken by the assistant, reads as follows : Almost to the end of the second year the child, a boy of about seven, suffered from what is described as a vesicular eruption accompanied with fever and restlessness. On being raised and when the spinal column was touched it cried out. Deformity was observed when the child was one year old. It began to walk at two. No history of tuberculosis.

Curvature of the spine, scoliosis, may be the result of different causes. We are told that it began in this case when the baby was quite young, so there may have been a congenital disposition. A congenital disposition to scoliosis might rest in the bones or in the muscles. If the scoliosis began very early, it probably was not the muscles that were at fault, but the bones, for the baby is not called upon to use its muscles much the first three or four months.

It is really wonderful that most of us are tolerably straight. The spinal column is composed of seven cervical, twelve dorsal, and five lumbar vertebræ, making twenty-four bones, and it is really a wonder, that we are not all more or less scoliotic, for any change in the shape of any of the bones would result in more or less deviation of the vertebral column from its normal outline. Now and then such an anomaly does take place,and scoliosis is the result.

The history is not very clear as to the time of commencement of the curvature in this case. If it did not occur until after six months of age the cause was probably muscular; the result of debility. External causes may have acted. When nurses carry a baby on one arm, as they generally do, particularly when the baby is quite young, you may expect some scoliosis. You should see to it that babies are not carried on one arm exclusively, and that they be not carried in an erect posture too early. Rarely can they sit up straight, or hold the head erect before the third or fourth month. Mothers and nurses being proud of the baby, often carry it on the arm without a proper support for the trunk before it is six or eight

weeks old, and often thereby cause scoliosis which is liable to become worse afterwards.

Girls and boys are compelled to go to school when only six or eight years of age. In school they have to sit up from five to eight hours on a badly shaped bench, perhaps one which has no back to rest the hips and spine against, the muscles become fatigued and the children lean over to one side, usually the right. They have to enter the room in file, there is little room between the benches, they are compelled to crowd in sidewise, and girls thereby push the bulk of their garments to one side where it raises the gluteal region as on a cushion, while the other side is not supported. The result is lateral deviation of the spine. Then they may rest one arm on the desk with the back twisted laterally, while the other arm is lower, and this, again, leads to misshape.

There are other causes of muscular mal-development. In rachitis it is not the bones alone that are affected; there is also insufficient development of the muscles. The dorsal muscles are weak, and scoliosis will follow. The ribs and vertebræ are frequently the seat of rachitic softening. Very often it is the lumbar vertebræ that give way in such children, because of the very considerable weight put upon them. Both the vertebræ and the muscles failing to keep the spine erect, we have scoliosis.

This case is a pretty marked one, the primary and principal deviation of the vertebral column being to the right in the dorsal region, while there is a compensatory curve to the left in both the cervical and lumbar regions. Usually the curve is to the right, and if not marked there is no or very little compensatory curve to the left in other regions.

How can we tell that this is a case of rachitical deformity? Look at the baby, first at its square, bulging head, then at the groove about the lower part of the chest, which is the result of softening of the ribs, against which the diaphragm and respiratory muscles are pulling harder than they can withstand. As long as the ribs are normally hard they can not be influenced by the atmospheric pressure, but when softened this pressure and the action of the diaphragm cause a sinking and a groove, such as you see here. This will remain even after the disappearance of the bone-softening mostly for life. As a further proof of rickets, we have here the pigeon-breast. The normal chest is elliptic, while this one is triangular, the cartilages of the ribs being pushed

forward by atmospheric pressure on the side of the chest, and afterwards hardened and solidified in that position.

The rachitical deformity produces effects upon the internal organs. It compresses the heart and lungs, and presses the liver downward. Owing to compression of the lung the patient in later life is apt to suffer from dyspnœa even though there be no acute trouble. The spleen and liver being pressed downward encroach upon the other abdominal and the pelvic organs. In such a compressed state, one could not expect the internal organs to perform their functions properly; the lungs do not get enough air; the heart's action is interfered with directly and by want of pulmonary function; the abdominal organs being cramped and displaced, digestion is often interfered with; the urinary secretion does not go on normally. Is it, then, any wonder that hunchbacks frequently have a bad temper, are peevish and morose? I mention that to call your attention to the direct dependence of our temper, our character upon anatomical disorders. In cases of this kind interference with the function of the viscera may be sufficient to account for the peculiar mental and emotional state of the individual.

Twenty years ago we had here in this country very few cases of this kind; ten years ago they began to be more common, and now, I am sorry to say, they are not at all infrequent. Rachitis was a very rare disease in its worst forms thirty years ago in America. The reason why it is so common now is easily found; it depends upon overpopulation, bad air in dwellings, insufficient and improper food and so on. Wherever there is a large influx of poor people there is rachitis, there is scrofula, and kindred diseases. We have not seen the end of it here yet.

Pott's Disease.—This little girl, about nine years of age, has a swelling in the upper and inner aspect of the thigh. You notice discoloration over the swelling, enlarged blood vessels, bluish tint. What can it be? It might be a large hernia, an inflammatory swelling, an abscess, enlarged glands, and so on. Hernia is excluded at once because of the situation of the tumor. The dilatation of the veins is due to some impediment of the circulation. I cannot say that there is fluctuation, but I get a feeling of semi-fluctuation indicating a good deal of fluid beneath, as if there might be a cyst or abscess deeply situated. The thickness of the tissues lying over the fluid prevents fluctuation from becoming more distinct.

If there be pus, as we think there is, it might arise from that neighborhood, or have travelled from a distance. There is no local trauma to account for it, and the glands are not affected. It would be possible, had the child been lying long in bed, with the leg raised, for the contents of an abscess above the knee to have travelled to this part of the thigh, but there is no history pointing in that direction. It is more than likely the pus has come from above. That does not mean from the abdominal walls, for these seem normal enough; it means rather from within the pelvis. An abscess inside the pelvis may reach the thigh anteriorly or posteriorly. In children we find abscesses mostly along the psoas or iliac muscles as a result of inflammation of the vertebral column (spondylitis.) The abscess starts as a rule in the centre of the vertebra and gradually breaks through. When it reaches the surface it affects the intra-vertebral cartilage, and may cause breaking down of most of the tissues near by, and may also result in change of shape of the spinal column. The pus increasing, makes its way to a distance, usually along the fascia until it reaches the pelvis. It may travel along the psoas and iliac muscles and finally reach the femur. Now and then the abscess will break through the pelvis posteriorly. Or it may follow down the muscles of the back to the deep tissues in the gluteal region. Sometimes after reaching the thigh, it travels down to the knee.

This baby has been complaining of her back twelve months. When playing with other children she gets tired and sits down. She walks stiffly. One test of vertebral trouble is the patient's ability to stoop and take this penny from the floor. When she holds the vertebral column stiffly, bends the knee and thigh, and reaches down with the arm close to the side to pick up the object, and perhaps in rising puts one hand on the knee, or moves along until she can raise herself by a chair, you may pretty safely diagnosticate spondylitis. Spinal disease may exist when it is yet difficult to find any deformity or swelling.

While there is scarcely any apparent deformity in the case we find, when the child is turned upon the face, that pressure over the spinal column causes pain in one spot in the lumbar region. Probably at this locality the abscess had formed in the vertebra, broke interiorly and thus found its way along the fascia, psoas and iliac muscles and made its appearance on the thigh.

One reason why the girl's condition is now so bad is the fact that the mother had not sense enough to know that she was sick, and even at this moment she tells me that she does not think the child has much the matter with it.

When the patient is placed on the back she dislikes to extend the affected limb, but keeps it slightly flexed, probably because there is a certain amount of inflammation of the psoas muscle. When the limb is forcibly straightened it causes the whole pelvis to rise. There probably was more pain over the iliac region anteriorly at one time, but the pus having escaped below the pain has now largely disappeared.

The first requisite for her recovery is absolute rest. She must remain in bed. It is a question whether that abscess should be opened very soon. A number of years ago every surgeon would have told you to wait, not to open it, for it was known that most cases turned out badly after the abscess had been drained, but with the facility which we now have of keeping the parts perfectly clean the results are much better than they used to be, and if this baby were in a hospital, under good supervision, I would not object to opening the abscess at once; I would keep it drained and wash it once a day, or every other day, and it is likely the result would be a very fair one if the bone would heal. I say *if* it would, and there is the main difficulty.

We must, if we can, attend to the original cause of the abscess and the general condition of the child. Most cases are of tubercular nature, but it may have resulted from trauma, from a fall, for instance. If the cause be tubercular, the disease may remain local in some form for years and then perhaps become general. We are told that this child's father died of tuberculosis and a younger child in the family died of marasmus, which probably meant tuberculosis of the mesenteric glands. It is very likely, therefore, that we need not look to trauma in this case, but rather to tuberculosis of the bone.

What can be done for that? Probably but little, for we can hardly cut down to the vertebra and remove it as we might do if the disease were situated in some other bone. As to the tuberculosis, I have felt encouraged to continue these twenty-five or thirty years the use of arsenic, and in addition to this I would give the baby guaiacol, in the beginning only one drop four times a day in sweetened water or in milk; it is better that creasote, for the

beneficial effect of the latter depend upon the amount of guaiacol it contains, about fifty or sixty per cent. I have been better satisfied with my results since I used guaiacol in addition to arsenic. Besides in protracted bone diseases, both in tubercular and non-tubercular, the tissue-building property of phosphorus comes in very beneficially. One-hundreth of a grain of phosphorus may be given three or four times a day, that means one drop of the oleum phosphoratum of the Pharmacopœia, or from 10 to 30 minims of the elixir of phosphorus of the National Formulary.

It was only a few years ago that Lannelongue recommended the treatment of local tuberculosis by the injection of a ten per cent. solution of zinc chloride in the surrounding ligaments and soft structures. He claimed a cure as a result in every instance, as positively as usual in the enthusiastic introduction of a new mode of treatment. A local irritation would be set up with production of so much new connective tissue that the bacteria of tuberculosis would be annihilated or rendered innocuous. I speak of this treatment and the wonderful results claimed for it because Lannelongue's name has been before the profession at least thirty years. He is well known as a surgeon, and you know we are inclined to believe whatever we are told, as we expect others to believe what we have to tell. However, I saw a number of Lannelongue's cases and can say that quite some of them were not very well, in fact they were far from being so.

Another local treatment, however, I will eulogize, and I think with reason, that is, injection of iodoform in oil and ether, or in oil only, into the tubercular cavity, either in the abscess cavity alone or in the bone containing cavities. Absolutely trustworthy observers speak well of it. If this abscess in the vertebra were within reach I would be very much in favor of injecting it with that agent. But again, in order to afford the slightest chances for any therapeutical success the patient ought to be in a hospital.

Adenitis.—This little boy has some enlargements under the jaw. One of them is intimately connected with the periosteum. Which is it? One of you replies the tumor on the left side; another one, the tumor on the right side. I must have been mistaken myself; it was another case, not this one, in which the growth was closely attached to the periosteum, for here, as all of you may perceive, the bodies are moveable. Moral, do not trust your neighbor-

ing practitioner. He may be mistaken, or may wish to lead you astray. Besides these larger swellings under the maxilla there are a number of swollen lymph bodies in the neck and also under the arm and elsewhere ; there are also dilated veins just below the clavicle, which means that there is an impediment to the circulation, and that impediment may exist in the vena cava or in the heart. It is probably not in the heart, otherwise there would be obstruction of the circulation manifest elsewhere; it is more likely in the vena cava or in the subclavian.

If the swelling were limited to the glands about the neck, we would expect to find some local cause or the history of one, such as inflamed mucous membrane in that neighborhood, stomatitis, catarrh of the mouth ; eczema of the head would cause a swelling of the glands back of the neck.

A large majority of the so-called scrofulous glands of the neck are the result of catarrh or other local irritation of the mucous membrane of the mouth or nose, or eczema of the scalp. But here the glands are enlarged at a distance in the axilla and elsewhere, so that we have to look for a general cause. We do not attach so much importance to enlargement of glands in the inguinal region for they are often slightly enlarged without special significance. It is possible that there are enlarged glands inside the chest which impede the circulation and cause the dilatation of the veins in the clavicular region of the surface. These mediastinal glands may have been affected gradually, by the three tiers of lymphatic glands which are located from the jaw to the clavicular region, from above downward. Thus, there are many cases in which the tumefaction of the lymph bodies does not appear to result from any irritation of the neighborhood. Thus, for instance, in leukæmia or leucocythæmia, and also in pseudo-leucocythæmia (Hodgkin's disease.)

The next patient, a girl of about eight years, is brought in with a mechanical apparatus. She looks rather pale. You suggest that she probably has joint disease, and that the condition may be inflammation of the soft tissues or bone—caries, necrosis, ulceration of some kind. Further, that the form of inflammation in the joints of children is apt to be tubercular. What would you look for as further proof that the joint trouble is tubercular ? Yes, there might be involvement of the lungs and glands. In most children tuberculosis will first show itself in the

glands. Here there is a scar under the neck and some remaining enlarged glands. You should also examine those under the arms. Some enlargement of the inguinal glands may exist and be of less significance.

The mother says the child limped three months before a brace was put on, and that she used to have fever. Dr. Huber tells us there is some hoarse respiration at the right apex. The patient coughs a good deal, worse at night, so that the mother thinks she may have whooping-cough.

I had the boy come to my office where his blood was examined and found to contain the normal number of red blood cells, and nearly the normal number of leucocytes. Thus leucocythæmia was ruled out. The boy says he coughs a good deal, but the lungs seem normal. There were no glandular enlargements except about the neck.

We have, then, several cases before us of glandular swellings. Are we entitled to use the term gland in this connection? What is a gland? We have been told that it is a body which has the physiological function of secreting. Now, a lymph gland, so-called, does not secrete at all. Besides an outer wall, and a good deal of cellular and elastic tissue, it contains lymphoid cells which have great similarity to embryonal cells. It also contains lymph ducts which enter and others which leave it, blood vessels that go in and out, and small cavities lined with epithelium. But it secretes nothing. It is only a depot for lymph ducts to deposit their contents in and take them up again to be carried farther. There is no secretion and therefore it should not be called a gland. Anatomically speaking, the term lymph body would be very much the better one. Now, such a lymph body is in most intimate connection with the ducts and large trunks of the lymphatic system, and finally with the blood circulation. It is, indeed, in intimate connection with almost every substance. Ducts lead to lymph bodies from every mucous membrane, from the skin, and from every other lymph body. I do not know of a more beautiful sight than that of injected lymph bodies. They are very numerous and constitute an immense net, no matter where one examines—in the skin, in the mucous membrane, even in the young bone. Imagine, then, that there is some irritation going on at the surface, say on the skin or the mucous membrane. It must result also in irritation of lymph bodies

or ducts. If there be within reach a foreign substance they are ever ready to carry it away, whatever may be its nature. Large numbers of them are open, and when there is a poison on the mucous membrane they quickly absorb it. They are open for instance on the upper and under surface of the diaphragm, which best explains, perhaps, the fact that local peritonitis or perihepatitis and pleurisy are frequently found together. A perihepatitis will make a pleurisy, a pleurisy will make a perihepatitis simply because the lymph stomata keep up a constant communication. If the irritation be on the skin, the lymph bodies become likewise irritated, hyperæmic and swollen. Babies and adults who have a catarrh, have the neighboring lymph bodies swollen soon afterward. Cure the nasal catarrh and you cure the hyperæmic and enlarged lymph bodies; or, if there be a diphtheritic deposit in the naso-pharynx, all the lymph ducts originating there will carry the poison to the lymph bodies to which they belong at the angle of the jaw, and they will swell immensely. Wash and disinfect the diphtheritic surface very thoroughly and the lymph bodies will be found to diminish in size very rapidly. Or, take a case of common eczema of the head of a baby, the lymph bodies of the neck will be swollen the first day or in a few days. Cure the eczema as soon as you can and the lymph bodies will diminish in size and be cured. No iodide of potassium, no massage, no ointment will be of the same service. So elsewhere, suppose, for instance, you have to deal with a common diarrhœa, a common intestinal catarrh, the lymph bodies of the mesentery will swell and become hyperæmic. When such a baby dies you will find the lymph bodies hyperæmic, the blood vessels engorged. In order to diminish the size of the swollen lymph bodies you have to cure the diarrhœa. There is no such thing as a morbid process running its full course without implicating the neighboring tissues. Whenever you do not cure the diarrhœa, the eczema, the nasal catarrh, the lymph bodies remain swollen. In the beginning these bodies are simply hyperæmic, a condition which by itself is not dangerous. It may come in a few days and go away in as short a time. After a while, however, when the blood circulation has been interfered with for some time, there will be effusion, a proliferation of cells in the connective tissue, and when the swelling has lasted three, four or six weeks the gland, if cut through, will be found no longer hyper-

æmic, but white, and in a few months there will be induration and thickening. The cellular tissue in the gland becomes hypertrophied, indurated, and incurable. Imagine, further, that the cellular tissue has not only become changed, but that there is also a real hypertrophy of the lymph body; that the lymphoid cells have accumulated, forming a large mass, with the constitutent parts crowding upon one another until granular degeneration takes place in the centre and finally suppuration. This breaking down into pus may remain central for some time, gradually it extends, the frail wall may become perforated, the surrounding tissue become involved, constituting peri-adenitis and going frequently on to the formation of a very large abscess. When the external skin participates in the process you have that peculiar large, soft red or purple swelling which after awhile will either rupture spontaneously or, which is better, fall under some surgeon's knife. When you incise such a peri-adenitis, or large abscess which came originally from a small source, you let out a good deal of pus, but you do not let out all and the abscess does not heal, for the lymphoid cells and tissues which participate in the process but have not softened are still there. They are not discharged when you make the incision. Such cases may go on a month, a year or ten years before the annoying mass is thrown out. Or you will have to go in and scrape it out, burn it out, or remove it with a knife—all of which might have been avoided had a simple nasal catarrh, eczema of the head, or diphtheria been treated correctly.

In a number of cases this simple process of glandular swelling and suppuration gives rise to important complications. The most serious one is invasion by tubercle bacilli. The bacilli entering one gland may pass on until they reach the lungs or invade the bones. In a number of cases tuberculosis is first visible in the glands, but in a number, particularly in children, it is first manifest in the bones. We must not identify the bones of a child with those of an adult. In children the bones are not at first a uniformly solid body. Long bones consist first of three parts—the diaphysis, the epiphysis, and the cartilaginous layer from which the growth takes place. Such bones are very succulent, and it is in the epiphysis and under the cartilage covering the epiphysis that tuberculosis is frequently seen, particularly in the bones which remain soft a long time. Thus it is that we frequently

see tubercular ostitis at the knee, at the hip, sometimes in the long bones of the fingers, etc. Those peculiar swellings that we see now and then constituting round or spheroidal bodies on the phalanges, the so-called spina ventosa, are ostitis, mostly of tubercular nature. In such cases the tuberculosis frequently remains in the bones a long time, and then may either heal up or become general.

I return to the lymph bodies. We only have to remember how numerous are the lymph bodies in order to judge how dangerous they can be. In the neck we have the jugular trunk, and nearby the subclavian and the broncho-mediastinal trunks. To them belong a large number of bodies and plexuses. The trunks finally take up all the lymph from the lymph bodies and empty it into the blood circulation. Irritation may at first affect but a single body, but from here it may extend gradually to others until about all in the body are involved. We often find, when there is a swollen gland in the neck, that a few weeks or a month afterward those lower down are involved, including the subclavian and perhaps the mediastinal. The latter are found enlarged, particularly in babies who are affected with rachitis at an early period. Sometimes the mediastinum is so far filled with enlarged so-called bronchial "glands" that you can detect their presence by percussion, sometimes on the left side anteriorly, but mostly posteriorly between the scapulæ about the hilus of the two lungs. When they are small they have little influence except that they cause secondary bronchitis. Babies of four, five, or eight months who have a catarrh all the time, generally have such enlarged glands. They may be numerous enough to give you the impression of a large tumor, and may compress the large bronchi and cause bronchial respiration without there being any disease of the lung or pleura. In some cases they even so far compress the large bronchi as to give rise to symptoms of suffocation.

In a number of conditions the lymph bodies swell from some general rather than from a local cause. That is seen in scarlet fever and typhoid fever; in leprosy, syphilis and leucocythæmia. The latter is a condition in which the blood is so changed that, instead of having one leucocyte to three hundred or three hundred and fifty red blood cells, there are twenty, or one hundred, and sometimes even one hundred and fifty leucocytes. That life can continue with one leucocyte to two red blood cells is out of the question. The seat of this disease may be

three-fold. It may first appear in the lymph bodies themselves, or show itself mostly in the liver, or spleen, or in the bones. Leucocythæmia in the bones is most deceptive and treacherous. Very frequently it cannot be diagnosed unless the blood be examined. When the liver, spleen, or lymph bodies are enlarged you can at least suspect the disease, and of course you will in that case be induced to examine the blood. Leucocythæmia is mostly found in the adult, but I have seen at least ten, probably more cases in children under three or four years. I also remember a case in a baby of seven months and, through the kindness of a colleague, one that terminated fatally at four weeks. It is very apt to run a fatal course in a few months in children, while in adults it may last years. I have seen a boy with it who had an immense spleen and ascites and lived seven or eight months, which was a long time for a child. There are some cases, usually originating in the bones, in which it ends fatally in a few days. I believe the whole number of recorded cases of leukæmia in children is about twenty-two, and in a few of these the patients died within eleven days, and in one in four days. Such cases show not only rapid increase of leucocytes compared with the red blood cells, but also symptoms of sepsis and acute purpura. There are hæmorrhages of different kinds, hæmorrhage from the nose, from the conjunctiva, into the brain, from the mucous membrane of the intestinal tract, and so on.

In this boy I did not find any such difficulty at all; the blood was normal. There were no misshapen blood cells. In what has been called pernicious anæmia, where there is no disproportion between the leucocytes and red blood cells, there is a peculiar change in the red cells so that, instead of being spherical, they become irregular in shape, some very small, some angular. I did not find that, and consequently could exclude pernicious anæmia.

There are other diseases in which the lymph bodies will swell pseudo-leukæmia, Hodgkin's disease, in that state in which, without originally a change in the condition of the blood, the lymph bodies of the whole body or the larger part of it slowly increase in size. There is no fever, no general irritation connected with it. I have lately seen a young lady about two weeks before her death, in whom the lymph bodies of the neck were so swollen that she was absolutely unrecognizable. The face was pale and formed a huge uniform mass, so great was the enlargement of the lymph bodies, the face was embedded in a mass of

them. The arms were raised, the lymph bodies in the axilla being swollen to such a degree that it was impossible for her to get her elbows near the trunk. The inguinal region was also padded with larged masses. There she was, propped up, and had been a number of months, waiting patiently until her last hour should come. Fortunately it has come since. When I saw her there was very little change in the blood, there was nothing to be found except the enormously swollen lymph bodies.

There is another cause for swelling of the lmyph bodies. We have already spoken of syphilis. Compared with some others, that is a very favorable cause, for we have remedies against it. Pseudo-plasms are the other cause to which I refer. Among children we most frequently find sarcoma and adenoma, or adeno-sarcoma. An adenoma means a large swelling in which the lymph bodies are much increased in size and contain a large number of round cells such as are seen in sarcoma. In sarcoma there is either a swelling which consists of round cells exclusively, small round cells mixed with spindle-shaped cells, or spindle-shaped cells lined with a large amount of connective tissue, or all three, round and spindle-shaped cells and connective tissue-stroma, increased. These are frequent, and are accessible to some treatment. The best treatment for a single sarcoma is the knife. That is, extirpate it and have done with it. But that is seldom possible; there generally are a number. On making an incision into the neck for the removal of perhaps four sarcomatous tumors which could be recognized, you will find still others below, and have to stop finally because the blood vessels will not permit of going further down.

Next to the knife in treatment comes arsenic Arsenic will certainly reduce sarcomata a great deal, and sometimes will cure the case. In a number of cases, however, after quiescence or apparent absence a number of months or years, the sarcoma would reappear and run a fatal course. This boy has taken arsenic about six weeks and is evidently better than he was; I am positive the lymph bodies are only about half the size they were some time ago. It will be continued. Fowler's solution has been given, two drops at first, now three drops three times a day, largely diluted, after meals. It is wonderful sometimes to what extent arsenic can be increased. I should not wonder if in time the boy can take four, five, or even ten drops three times a day. The dose should be carried

up, if the effect is not obtained before, even to the production of intestinal symptoms, as diarrhœa or vomiting, or the production of erythema, or dropsical symptoms. Always remember the remedy must be given after meals and largely diluted.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

BY A. JACOBI, M.D.,

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Diphtheria, Rachitis, Congenital Syphilis.

Diphtheria.—The following history has been obtained in this case. The girl is seven years old. Six days ago she complained of pain in the throat. This morning she cannot speak on account of hoarseness. The temperature is 103° in the rectum. On looking at the throat one sees some patches, and the enlarged tonsils. The glands under jaw are also swollen.

The child was here before and the mother was told not to bring her again because of the danger to other patients. Still, here she is again. You will remember what I said at a previous clinic, that dispensaries are expected to do a good deal of good, that is what they do, but they also do much harm. Doubtless hundreds go there to be infected with contagious disease from those that ought not to go to a clinic at all, but should be isolated.

For the purpose of diagnosis your attention is called to the following points: The patient has a temperature of 103° F. On both tonsils there are a number of isolated, grayish spots. The tonsils and the general mucous membrane are not unusually red at all. Earlier, however, there has been redness, but it has disappeared, which shows that the local irritation is much improved. Not every membranous deposit is associated with an excessive hyperæmia. On the contrary, not infrequently do we see a whitish membrane without much hyperæmia. Sometimes such spots appear upon a mucous membrane which seems to be intact. Yet remember that a mucous membrane which becomes diphtheritic cannot, with one exception, be intact; there must first have been an abrasion, although it may have been a very small one. That is why

I warn you against using swabs, against cauterizing, and so on in any form of diphtheria, for unless you touch the exact spot and only the exact spot of the false membrane, you will destroy epithelium, and then, a new diphtheritic invasion or dissemination will take place. The one exception alluded to is the tonsil, where Stoehr demonstrated minute interstices between the superficial epithelia; into these interstices diphtheria may find its way and involve the system without there being a sore or break of the surface in the ordinary sense of the word. But as a rule it gets a hold only where there is a superficial lesion. A surface which is very hyperæmic may be attacked by diphtheria afterward, but it is not always so; hyperæmia by no means always precedes diphtheria. A very high degree of pharyngitis may run its course, and even lead to suppuration without being attended by diphtheria. As a rule diphtheria and suppuration do not go together. The cases in which diphtheria is complicated with abscess are very rare indeed. When abscess does occur it is usually situated in the deeper tissues, say at the side of or below the tonsil which then is raised, and the seat of a good deal of pain and accompanied by fever. While you may not see such a case in the course of a year's active practice, yet it is necessary to know that it may occur.

In this girl's case there is one peculiar symptom; she is absolutely hoarse. Hoarseness implies an abnormal condition of the vocal cords. Is there a membrane in the larynx, or is there simply a catarrh? For a catarrh will give rise to the same hoarseness as a membrane. A great many of us when we have a laryngeal catarrh cannot make ourselves heard. This girl cannot; she speaks in a whisper. This condition has existed only since this morning. Observe the chest. Is the respiratory movement such as to indicate dyspnœa and laryngeal obstruction? No. The movements of the chest are fairly normal. It would seem, then, that there is no considerable obstruction in the larynx; that the simple hyperæmia which had previously existed above has descended into the larynx and caused aphonia. If there were a dense membranous deposit in the larynx, difficulty would be experienced in getting sufficient air into the lungs and the respiratory muscular action would be increased to force the air through the narrowed glottis. There is, in such cases, violent action of the diaphragm and the other respiratory muscles, the movements are especially noticeable above and below the clavicle; here in genuine croup there is a

considerable amount of retraction, the breathing becomes labored, and the exertion to fill the lung becomes very great. The inspiration is drawn and protracted, besides being noisy. You can hear such a child's breathing and can see changes in the external aspect of the chest above and below very distinctly at a distance. Nothing of this diagnostic sign is visible in this case. The change in the vocal cords cannot, therefore, be considerable, although there must be some change to account for the hoarseness. There may be, however, a thin film of membrane, and I should decidedly be of this opinion if there had not previously been a hyperæmia above *and fever*. Some years ago, before diphtheria had become so constant and extensive in the city, isolated croup of the larynx was more common, the deposit on the vocal cord with the signs I have just described, being the only diagnostic symptom. Such cases were attended by no fever because there are very few lymphatics on the vocal cord to absorb the virus. It was, and often is now, a local disease only,and destroyed life simply by strangulation. Thus as long as you have to deal with a larynx which is filled with pseudo-membrane, with no diphtheria of the nose, naso-pharynx or pharynx or other complication, the disease proceeds without fever. But when you meet with a case of obstruction of the larynx with fever and nothing else, it is an inflammatory trouble, may be a simple catarrh. Such are the cases of supposed croup to which you may be called in the night and before you get to the house the attack of hoarseness and croupous dyspnœa is gone. They are accompanied by fever. If there be no fever they are dangerous, because probably pseudo-membranous and not simply catarrhal. When I made this distinction many years ago I was laughed down, but now I have the satisfaction of knowing that it is taught in many text-books. Once more: long drawn, slow inspiration, and absence of fever mean in most cases pseudo-membrane; increased number of respirations and increased temperature mean inflammatory disease of the respiratory organs which it is true, may be complicated with pseudo-membrane.

As to the nature of the case before us, I think we would be derelict in our duty if we did not treat it as one of diphtheritic laryngitis. There has been diphtheria of the pharynx, and the probability is that the trouble with the vocal cord is diphtheritic and if let alone it may form a massive membrane which will lead to strangulation and

necessitate either tracheotomy or intubation. Since 1880 when I began to give mercury in so-called membranous croup I had the satisfaction of seeing many cases get well which formerly would die whether with or without tracheotomy. Since the introduction of intubation I have also observed that cases with this operation do much better if mercury be administered before and afterward. The preparation which I have always used is the bichloride. A child of this age ought to take about one-fiftieth of a grain every half hour for the first day, and every hour the next day. Some of it is always lost, so that if you prescribe one-fiftieth of a grain every half hour the child will probably get about two-thirds of a grain in the twenty-four hours. The younger the child the more it can take proportionately, so that if it be half a year old it may take about one sixtieth of a grain every hour without being troubled by mouth or intestinal symptoms. Perhaps in one of thirty cases there will be a little vomiting or diarrhœa. When that takes place a few drops of tinct. opii camphorata will correct it. Be sure, however that the mercury is given sufficiently diluted, say one, part to eight or ten thousand, or even more, of water. The one-fiftieth of a grain in a tablespoonful of water would be about right, making a dilution of about one to twelve thousand. Babies that have no teeth will show less mercurial influence when so treated than older children, but these too, are perfectly safe. It takes children longer than adults to get under the full influence of mercury as far as over-dosing is concerned.

The child should be kept in a room of even temperature, above rather than below 70° F; say 72°. Water should boil on the stove all the time. It would also be well to pour some crude oil of turpentine into the water, using, say, a tablespoonful every hour, thus filling the room with the vapor of turpentine and water.

We have just learned something more about the surroundings of the case. The mother of the patient was confined only a few days ago, and therefore is liable in the small rooms they occupy to get diphtheria and die. Then there is the newly born baby with the stump of the cord which can very readily become infected by the diphtheritic poison. Yet the woman who has brought the child here refuses to have it sent to the hospital. If we were a civilized people the child would be taken away from the woman whether she wished it or not, and be sent to the hospital where there would be a chance to

save it by performing intubation or tracheotomy should it become strangulated, and where it could not infect the puerperal mother and newly born baby, or the whole neighborhood. But what can we do under the circumstances? Absolutely nothing. We can simply wait for the time when in a hundred years or more we will be more civilized and can protect ignorant people against themselves.

Rachitis.—Our next patient is a little girl with rachitis. We have already seen some cases of this disease, and I will try to avoid repetition, yet when cases come that are very instructive I would like to present them. What I said of curvature of the long bones is particularly well illustrated in the bones of the leg here. The epiphyses are very large and the softening also involves the diaphyses. There is curvature of the tibia both forward and outwards. Babies who contract rachitis in their second year, while trying to stand and walk on their softened bones will have not only lateral but also anterior curvature, as this one has.

We notice in this patient a peculiar flabbiness of the muscles, especially of those of the abdomen. The belly is big, owing not so much to the size of the internal viscera as to the gaseous distention. In some cases, however, the spleen and liver are enlarged. The spleen may be found a little below the border of the ribs while the liver, which is always large in babies, may reach down to near the navel. That is due less to hypertrophy of the organ than to contraction of the chest, for the chest in rachitis is not elliptical as in the normal state, but triangular and compressed. The enlargement of the belly in children is, therefore, due to several causes: 1. The viscera may be a little hypertrophied; 2. They are dislodged downward; 3. Distention by gas. The gaseous distention is greater than usual for two reasons, namely, that the abdominal walls are flabby and do not exert the normal compression upon the intestine, and also because usually the muscular layers of the bowels themselves are feeble, flabby and do not cause expulsion of the gas. Nor does absorption of gas take place readily. Constipation may be an early symptom of rachitis, being due to inactivity of the muscular layers of the bowels; indeed in many cases it is the first symptom of rachitis.

Congenital Syphilis.—The history of the little baby now presented to you reads as follows: The mother has been married a little more than three years, and has been pregnant three times. The first pregnancy terminated from

an unknown cause at the eighth month. The child according to the physician's statement, was somewhat of a yellowish or of copper color. The second child is twenty months old; this is the third one, now five months old. Not having milk herself the mother put it on the bottle. At first she gave it condensed milk, diluted so that a bottle of water contained one teaspoonful of the milk. Of that the baby received not more than six teaspoonfuls in the twenty-four hours. A diarrhœa developed which continued a number of weeks. At the age of two months the diet was changed; it was put on sterilized milk, one part milk to three of water. Now it occasionally gets a little oatmeal.

Thus you see the baby has had a hard time. A hard time for different reasons. First, a child was previously born at the eighth month; it showed some suspicious eruptions, and if the history were fully known it probably would have given evidence of syphilitic taint. Rachitis being a disease of general ill-nutrition rather than of the osseous system alone, it is not infrequently the result of hereditary syphilis. Indeed there are some who insist that every case of rachitis is of syphilitic origin. But our time being limited, I can only say to-day that the assertion that every case of rachitis is of syphilitic origin is a gross exaggeration.

This baby at first received a teaspoonful of condensed milk a day, and afterwards sterilized milk. The first was improper and insufficient; the second was insufficient. To feed a baby on cow's milk mixed with water exclusively is certainly erroneous, not being based on physiological facts, and sterilized cow's milk is always cow's milk; it is not more. No matter how carefully you sterilize cow's milk, it is never woman's milk, and is never, in that shape, a thing which the baby will bear as well as mother's milk. This baby has been illy nourished; it has a quadrangular chest instead of an elliptical one. The cartilages of the ribs are very prominent simply because the sides of the rachitical ribs are flattened by the atmospheric pressure during the process of respiration. The result of the lateral compression is that the anterior ends are pushed forward. This is one of the signs of rachitis. Then the tibiæ are beginning to curve considerably more than normal. I have already reminded you of the fact that a part of the curvature of the long bones is the result of the baby's position in the uterus. But the bend is too great here to be accounted for in that way altogether. Then there is swelling of the epiphyses.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892-93.)

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Epispadia and Exstrophy of the Bladder. Pneumonia. Constipation.

Epispadias and Extrophy of the Bladder—At the close of the Clinic otlast week some of you saw a boy of about eleven years who had hypospadias and complained considerably of pain while urinating, and it took him a long time to empty his bladder. Besides that case we had seen one in a baby, the glans being large and the penis bent upon itself, the spongy substance poorly developed, so that had an erection taken place the organ would surely have been turned down. As the baby was very young, we decided to wait a time before proposing an operation.

To-day we have another baby with an arrest of development different from that seen in the former cases. I alluded to the fact that in fœtal life many organs of the human body are formed in grooves or open channels, which gradually become closed. I alluded to the fact that hernia of the brain, and hypospadias, spina bifida, umbilical hernia begin in such a way. The same thing is true of exstrophy of the bladder. The bladder is formed at a very early time, beginning to assume shape about the fourth week of uterine gestation. Until that time it is a part of what is called the cloaca, a large cavity into which the lower part of the intestines also terminate. Later a wall is thrown out, separating the rectum and bladder. The abdominal cavity and the bladder being originally an open groove, closure may be delayed or may not take place at all. Now and then closure so far takes place that only a small opening remains, extending through the abdominal walls into the bladder, through

which you may be able to introduce a pencil or your finger. Unfortunately the cases in which no closure over the bladder takes place at all are more frequent. In this event there is no anterior wall of the bladder; only the posterior wall is present and protrudes, being uncovered by the abdominal walls, so that the surface looks raw and hyperæmic. What you see here is simply the mucous membrane of the posterior wall of the bladder, the surrounding skin showing gradual transition into the texture of the mucous membrane. The upper part of the mucous surface is seen always to be dry, while the lower part is moist. That is the condition observable in this case. Looking more closely we observe two little spots from which urine squirts forth from time to time; the stream is not constant, but interrupted. That fact is best seen in the normal bladder with the cystoscope. When looking through that instrument there are periods when nothing special is seen, but every ten, fifteen, or twenty seconds an undulating movement will be noticeable in the liquid contained in the bladder caused by urine coming down from the ureters.

Besides bladder exstrophy, there is in this case a condition of epispadias. The penis has not closed on top. In very bad cases the symphysis pubis does not close, and in a few instances the bones have shown an arrest of development.

The mother has applied a hard compress where the urine escapes, such as is used for hernia. Certainly it did not keep the urine in, and I cannot imagine the indication for such an instrument. It has been attempted to construct a box to apply over the abdomen, which was to take the place of the bladder and from which the urine could be allowed to escape from time to time. But only an adult could wear it with any degree of success. The only thing which can be done for this child is an operation. Operations have proven successful a number of times. In such cases there was a good deal of tissue to draw upon, the edges were freshened and sewed together. Now and then it was necessary even to separate the pubic bones in order to get enough tissue to draw from, just as sometimes in doing a hare-lip operation it is necessary to separate the cheeks from the bones and draw them forward. But no operations have been undertaken, so far as I know, in babies less than a few years old. Meanwhile the mother has to get along the best she can. It is necessary to keep the skin from becoming irritated by the urine,

and that can be done by applying vaseline alone or with bismuth.

The scrotum is normal in this case, and the testicles have descended at the proper time. The bones are well developed.

The case is interesting enough, especially when considered in connection with the one of hypospadias which some of you saw last week. That boy, aged about eleven years, complained as an adult will who has stricture of the urethra. That is, he had slow urination accompanied by pain, and for that reason had retained his urine a number of times for quite a while. You know what a stricture in the adult will lead to by interfering with the free flow of the urine: the urine being retained in the bladder longer than it should becomes alkaline, irritates the mucous surface, produces a subacute and afterward a chronic cystitis, there may be ulceration, and inflammation may extend up the ureters to the kidneys and produce pyelitis. All that might happen to this boy should he go without treatment. His hypospadias terminates about the fossa navicularis, where there is only a very small opening, and the doctor who saw him said he was able to introduce a probe into the anterior part of the urethra, but that it would not go beyond. I found the same difficulty. He was kept under observation until he would stay no longer; he wanted to go home. During his stay I had opportunity to learn that it was impossible by ordinary means to pass a probe but a very short distance into the urethra. The opening was very small and a probe could be introduced about two-thirds of an inch, but there it would stop. Then it was attempted to introduce a probe while the boy was urinating, and that succeeded. It was one of the cases in which the usual development of the urethra was not completed in fœtal life. Normally, the urethra is formed from outward in, and from inward out, so that the two parts join behind the glans penis, similarly to what occurs in the rectum, where the lumen of the intestine is formed by the two separate parts of the intestine joining each other. The outer part of the urethra failed to join evenly with the inner part. They overlapped, forming a pocket into which the probe would enter and stop, until finally its introduction was effected while the urine was passing outward, opening up the continuous channel and closing the pocket. In that case the best treatment would probably be to dilate gradually and persistently.

Pneumonia.—This colored baby, two years old, was taken sick last Sunday, three days ago. It was noticed that it could not sleep at night, that it was thirsty, had poor appetite, was feverish, had a cough, and yesterday vomited once. It has lost strength. The temperature in the rectum was 101° F. The rectum is the only reliable place to take the temperature of a baby, and it is the quickest. An average thermometer will take the temperature in the rectum in a minute and a half, whereas if placed in the axilla it requires five minutes, and then the result is very uncertain. The child being restless the air gets to the thermometer; the surface, too, is perspiring more in one case than in another and lowers the temperature. The mother can be instructed to take the temperature by the rectum, and the result will be just as reliable as if obtained by yourself.

There being fever and cough, you would suspect an acute or subacute inflammatory disease of a respiratory organ. Cough may be produced in the pharynx by reflex action, but it generally originates in the larynx or upper or lower part of the bronchial tubes. When inflammatory disease develops in the respiratory organs, particularly in the lungs, the result must be immediately a change in the respiration. The respirations are less deep and therefore they must be more frequent in order to give a sufficient amount of air. When the temperature rises there is also an increase in the number of respirations and heart-beats. There is a certain normal relation between the heart-beats and respirations. In the child the normal relation between the two is about ten respirations to thirty-seven or thirty-eight heart-beats. When there is a variation of this proportion there must be some reason for it. In disease of the brain the heart-beats are often reduced in frequency, while in inflammatory disease of the respiratory organs the number of respirations is increased. For instance, if the pulse in a baby were found 120 the normal respiration would be a little more than 30, perhaps 32 or 33. If then there be fever and a pulse of 150 it should correspond to 40 respirations, but if the actual number of respirations be 50 or 60 you may infer that there is some inflammatory disease in the thoracic cavity. In a large number of cases, therefore, you can make the diagnosis of an intense bronchitis, of a broncho-pneumonia or a genuine croupous pneumonia, simply from disturbance of the normal proportion between the respiration and heat-beats. This baby, for instance,

has 60 respirations a minute, and in order to maintain the normal proportion there should be about 225 heart-beats in the same period. Instead of that the number is only 150 or 160, or 10 respirations to 25 heart-beats, instead of 37. That points to inflammation of the respiratory organs.

On examining the chest we find dulness on the left side behind, and bronchi very perceptible near the chest wall, pointing to pneumonia. What kind of pneumonia? If there were genuine croupous pneumonia there should be by this time not only moderate dulness but decided flatness. Further, instead of coarse respiration and a few râles, there should be by this time bronchial respiration, for there would probably be a good deal of induration throughout the whole pulmonary tissue. The air would go in and out of the tubes but would not pass into the air cells, and you would hear it as you do in the trachea. That is what is called bronchial or tubular respiration. If the baby cried you would hear the voice just under your ear, producing what is called bronchophony. That is not present here except to a slight degree. A broncho-pneumonia or lobular pneumonia, the result of the extension of a bronchial catarrh, is usually bilateral; it is seldom limited to one side only. In most cases it begins beneath the scapula and is found on both sides. We shall have to consider the subject of pneumonia more fully at a future time. To-day we can speak further only of treatment.

When you treat a case do not treat the name of the disease but rather the patient. I have seen many cases treated according to the book very beautifully indeed and everything went quite well according to the notion of the doctor, until all at once the patient was dead. Why was it so? Simply because so many of us are more likely to treat the disease by name than to treat the patient. We have to deal with a single child, man or woman, and we must study that person. According to whether we have to treat a pneumonia in a child which previously was healthy or sick, robust or delicate, will the prognosis differ, and the treatment must be different. Many a case of pneumonia will run its full course without any medicinal treatment, while many a case requires very active treatment from the very beginning. That is especially so in regard to local and general stimulants. It has become the fashion to begin the treatment not only of infectious diseases, but also of common inflammatory diseases, with

very strong stimulants, particularly alcohol. Nothing is more—I will put it mildly—erroneous. While a number of cases which do not survive the second or third day might be saved with active stimulating treatment, others are worse off when alcohol is given them than they were before. Therefore every case should be studied.

This child is emaciated and not capable of withstanding a siege which an ordinary child could do. Therefore it requires good nutrition and some stimulation at once. Whether alcohol should be given is another question. Babies do not stand alcohol very well unless in infectious diseases. Considering the facility with which they develop hyperæmic conditions of the brain, it is better to abstain from alcohol as long as may be. It would probably be better to give a patient of this kind benzoic acid, or camphor, or ammonia from the beginning. At the same time a general stimulant is not what is wanted, but rather a local one. The epiphyses are large in this baby, being an evidence of some degree of rickets, and that means that the heart muscle as well as other muscles are not well developed and easily exhausted. I should give such a baby a grain of carbonate of ammonia every hour or two, and also some digitalis. It might receive half a minim of Squibb's fluid extract of digitalis every three or four hours. Good nourishment, but not an excess of it, should be given, and the temperature of the room should be kept at about 69° to 72° F., the air a little moist, and under such circumstances the baby's chances of recovery are very fair. Do not forget, however, that in these cases you have not to deal with a genuine pneumonia, which will take just six or eight days to run its course, but rather a broncho-pneumonia which may last as many weeks, for a bronchial catarrh may develop into a pneumonia here and there in certain limited areas which may be quite well within a week, but meanwhile new sets of pneumonic inflammation will develope this process repeating itself until six or eight weeks pass before recovery takes place. It is, therefore, more necessary to commence stimulation early than it is in genuine pneumonia, which runs its course in a definite and much shorter time. There are no complications here, at least at present, with the exception of the general debility of the patient; therefore no indications for any other treatment. Particularly no antipyretics are to be given so long as the temperature will not prove excessively high. You

cannot extinguish a fire by preventing yourselves from observing it.

Constipation.—This baby is six weeks old, and is said to have weighed fourteen pounds when born. Since two weeks ago it has lost a great deal in weight. At the same time it began to have small, pin-head whitish vesicles on the forehead. The vesicles spread peripherally. It has had a cough for three days. It is habitually constipated. The mother denies having had syphilitic symptoms. The father admits having had some variety of venereal disease eleven years ago. There have been no miscarriages. The mother has another child two years and a half old, which has purulent ophthalmia and a discharge from the right ear. Her milk is not good and she has fed this baby chiefly on paregoric and anise-seed tea.

We learn, then, that the baby was very large when born. The mother is large and fleshy. The baby is very much emaciated now, its skin is hyperæmic; there is an eruption on the head, scabs are present all over it, the surfaces are oozing as most hyperæmic and sore surfaces do. The scabs are composed of serum which has dried up, of epithelium, of dirt, and of hair matted together. Had the baby been washed well from the beginning the scabsnever would have formed.

I can find no local disease in this baby further than what has been mentioned. There is no apparent reason why it should be so emaciated. There is not much reason for suspecting syphilis. There has been no roseola, there are no ragged edges about the mouth or anus, the soles of the feet and palms of the hands are clear; there is not even a nasal catarrh or ulcer.

But there is something else to account for its condition. Yes, the baby is constipated; it goes three or four days without a passage, and then the mother gives it oil. But there is still an important point in the history. "The baby lives on anise-seed tea and paregoric." Yes, and that is not a very nourishing diet. The baby had the breast a few days or a week, and since that time the poor unfortunate waif has been living on five-drop doses of paregoric and ample quantities of anise-seed tea; and it has been starved. Of course there can be no fæces if there is no food. She said the baby was constipated. Certainly it was; nothing getting into the intestine, nothing could get out of it. The mother is amused at this remark, but the saddest thing of it all is that such a woman should have charge of a human being at all. But

there is no one to care; certainly no one to interfere. If the baby were kicked into the street by a bystander or by the mother, some policeman would come, perhaps, and see that justice was done to both parties, but there is here a human being absolutely in the power of this woman and she does with it and does not with it as she pleases. She starves it, the baby will certainly be buried if she goes on like that, and there is nobody to care, nobody to hold her responsible; no justice, no humanity, no society that cares anything for one in its helpless position. If that is not a sad thing at the end of the nineteenth century, I do not know what is. For you, it is well enough to see this case of "constipation," which indeed is no constipation in the exact meaning of the word, but is frequently mistaken for it.

The way to get rid of the constipation in the case is to give the baby food. It must receive something more substantial.

Before closing I will add a few more remarks to what I have before said about constipation in general. I have spoken of what I call congenital constipation. The sigmoid flexure in the newly born and in the infant is bent upon itself, not only once, but sometimes twice, or even three times. Indeed that part of the colon is so long that the sigmoid flexure is found in the right side often enough to have led surgeons to operate on the right side for artificial anus, instead of on the left. It is the great length of the colon at this end which causes the flexures, and these sometimes cause congenital constipation. The downward course of the contents is delayed; the fæces dry out and accumulate, and when passed finally they constitute hard whitish or yellowish balls. I have met with a number of cases where they had to be spooned out. I described a case twenty-five years ago in which a baby had no discharges at all, and believing there was imperforate rectum I operated. The baby died, unfortunately, and then I found that I was entirely mistaken; there was only just that condition of things which I have just described. Since that time it has been better appreciated, and is recognized as a cause of serious constipation.

This form of constipation will last until the fifth or seventh year, when the lower part of the intestine assumes the shape generally described in adults. Until then such babies ought not to be given purgatives, as a regular thing, but should receive one or two rectal injections a day.

Besides the want of food as a cause for constipation in the baby just seen, there is still another cause, namely, opium. A large number of babies are constipated because they receive paregoric. Then I have before spoken of constipation in connection with rhachitis, and I will not repeat those remarks. Another cause is improper feeding. Many babies are fed on cow's milk, which contains a good deal more casein than mother's milk. This coagulates in the stomach; the coagulum is not dissolved again, the masses go down into the intestine and there act either as an irritant, producing diarrhœa, or obstruct the lumen of the gut and cause constipation. Farinaceous food, when given exclusively or in large quantity, may have the same effect, clog up the intestine and set up irritation and diarrhœa or produce constipation. A number of medicines besides opium, which has already been mentioned, have the same effect. Tannic acid, large quantities of bismuth, phosphate of lime, and lime generally, which are given against a sour stomach, etc., will cause constipation unless they are withdrawn at the right time. Another cause is inactivity of the muscular layers of the intestine resulting from inflammatory trouble. Enteritis, which in the beginning gives rise to diarrhœa, afterwards gives rise to constipation, because of an œdematous effusion into the muscular tissue which results in a paretic condition. The same can be said of peritonitis. This is not by any means an infrequent disease in infancy and childhood, it leads to an œdematous effusion into the tissues and inertia of the muscular layers, besides influencing the sympathetic nerves.

Thus, every case of constipation ought to be studied by itself, and the treatment should be in accord with the cause. If there be no passages because the child receives no food, it must be fed. If the casein of cow's milk is the cause, the quantity of milk must be reduced and some farinaceous or animal food be mixed with it. Where medicine is the cause, it must be discontinued. If there be rhachitis, treat that. Where there has been peritonitis you must at least avoid the dangers which would attend the administration of medicines that would irritate the intestine and make likely another attack. Where there has been muscular paresis from the causes already named, it will be well to support the abdomen and facilitate muscular action by applying a bandage around the abdomen. In such cases, too, injections will probably do much more service and be safer than medicines.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Whooping-Cough.

Whooping-Cough.—This girl, about six years of age, had, we are told, measles in July and a cough ever since she was a baby. The mother brings her here because of a cough which she thinks is whooping-cough, and doubtless she has been told that it is. She has severe attacks of coughing at night, is a little better during the day.

The cough to which the mother refers must be the result of some actual change extending over a long time. Very likely there have been intermissions, more or less complete, until a new catarrhal attack would develop on a subacute or chronic form. We meet with a great many such cases, either in children who for some reason once had an acute bronchitis and never got well, or who had a tendency to rickets or so-called "scrofula" from infancy. Those children who have a tendency to glandular swellings, not only in the neck but also in the mediastinum, are very apt to have an irritation, a hyperæmia of the bronchial tube. This is very apt to pass into a subacute, and from a subacute back into an acute bronchitis, and occasionally into a broncho-pneumonia. Evidences of the latter are often found. Such babies are very apt to perish finally of an acute extensive attack of broncho-pneumonia or to pass into tubercular consumption. The latter is particularly apt to occur where, as is true of many cases, there is a family history of glandular swellings and tuberculosis. Now, this child had measles in July, having already been a sufferer from bronchitis, and under those circumstances an attack of measles is very apt to lead to broncho-pneumonia. Doubtless it did so in this case and the child has not been well since. The mother thinks the child coughs differently from what it used to; that

now it has whooping-cough. It is well to bear in mind that whooping-cough does frequently follow measles, for the reason, we may suppose, that the active agent of whooping-cough, probably a germ, takes hold more readily when there is morbid condition of the bronchial mucous membrane than when the respiratory tract is in a normal condition. In children who have been coughing for weeks from bronchitis, it is very difficult in the beginning to make a differential diagnosis from whooping-cough. You can reach a conclusion only when the peculiar crowing inspiration takes place from spasm of the glottis, especially at night time. When there is a severe cough and no previous broncho-pneumonia or marked bronchitis to account for it, you may be justified in making an early diagnosis of whooping-cough, or before the whoop becomes so striking as to be absolutely diagnostic. To be able to do this safely, however, it is necessary to examine many so-called trifling cases, for the more important cases often present in the beginning only such symptoms as are found in the comparatively unimportant ones. It is the so-called trifling cases which often try the practitioner. Not to know whether a cough will prove to be a whooping-cough or only the cough of a light bronchitis, may cost you a family and your good reputation, for any old woman can make the diagnosis of whooping-cough as well as you when the whoop has declared itself in a definite way. Now and then it is expected that the doctor know a little more than the old woman of the neighborhood. That means that he must study his trifling cases over and over again, and as he does so he will find them growing constantly more interesting. And they sharpen his wits.

The attacks of whooping-cough occur most frequently at night. Sometimes during a single night there are only two or three, sometimes twenty or thirty attacks. They are most apt to come at night, because, first, the children are then locked up in bad air, which irritates the bronchial mucous membrane; second, the patient lies usually on the back, and whatever there is in the nares or upper pharynx runs off into the larynx, or at least to the arytenoid cartilage and sets up irritation; third, whatever accumulates in the bronchi and larynx is expectorated as it is in the day time and it leads to cough. The general cause of the disease, however, is probably a germ and acts by day as well as by night. Still the attacks in the day are not only less frequent but are also less violent.

Whooping-cough is liable to last a number of months. During the attacks the child coughs violently, the face becomes flushed because of the interruption of the circulation, the diaphragm contracts on the heart and lungs and interferes with the circulation; the muscles of the neck constrict the jugular veins and the blood is retained in the face and brain. In a number of cases the restriction of the circulation in the small vessels causes hæmorrhages, especially on the conjunctiva, nose and lungs. Such children are sometimes seen going about with one or both eyes bloodshot. That may last a week or two weeks, and recurrence take place repeatedly. There may be hæmorrhage from the nose; there are hæmorrhages from the lungs. Such babies vomit a good deal; bringing up the contents both of the stomach and of the bronchial tubes. Now and then they have hæmorrhages into the meninges, but before this there is simple hyperæmia. The hyperæmia or congestion may lead to convulsion. I have seen patients that would have a convulsion with every attack of cough. I have seen as many as twenty or twenty-five convulsions in a day, and have been compelled to give chloroform as soon as an attack would begin in order to prevent a convulsion. The hæmorrhage into the brain may lead not only to convulsion, but also to paralysis, local or hemiplegic. The cases of local paralysis due to whooping-cough are by no means infrequent, and therefore to let a whooping-cough alone because it is expected to run its course in three or four months, more or less, is a great mistake. It is not a question whether it is necessary to treat such cases; it is rather a question whether it should not be regarded as criminal not to treat them. It is not a question whether you shall give a placebo; you must give an active medicine.

Still, the treatment in most instances is very unsatisfactory, the best proof of the difficulty of controlling a whooping-cough is seen in the hundreds of quack and regular medicines recommended for it. The whole pharmacopœia has been pilfered for the purpose. A large number of remedies have been tried and given up. There are very few that stand the test of time and experience. For many years I have, after trying for a time some new remedy that might arise, always returned to my old love, which is belladonna. Belladonna is, in my opinion, still the best thing which we can give in the treatment of whooping-cough. I give it in three daily doses, one in

the morning, one at noon, one at night. Every dose must show an effect. The first sign of an incipient overdose in the adult is dilatation of the pupil. In a child it is a peculiar erythematous flush of the cheeks. A blush makes its appearance say fifteen or thirty minutes after the dose has been given. This effect should be visible at every dose, otherwise the belladonna will have no effect on the whooping-cough. This child might receive ten drops of the tincture three times a day, and if there be not the effect just mentioned, the dose may be increased a drop until the effect is observable. Anyway, after a few days it will fail to produce the flush, and I find that as a rule the dose has gradually to be increased until about in a fortnight it has been doubled. I again repeat that, unless you obtain the flushing of the cheek, the belladonna will have no effect on the whooping-cough, and you might just as well have not given any treatment at all.

Sometimes the attacks of coughing are very severe, and may lead to convulsions, so that you are compelled to do something else, give some immediate relief. This is particularly true at night. Opium or chloral might be given. This child which is six years of age might receive six or eight grains of chloral hydrate at one dose. If the effect should wear off, another dose might be given in from three to six hours. Sometimes it is necessary to give a good dose of chloral at bed-time every night in order to secure sound sleep.

A number of medicines have been recommended in whooping-cough, as already stated. Bromides have been recommended, and of late bromoform in three or six drop doses two to four times a day. I cannot say that my experience with it has been sufficient to confirm the urgent recommendations made in its favor.

Delivered December 14, 1892. (*Stenographic Report.*)

Craniotabes and Hydrocephalus. Purpura. Tubercular Peritonitis. Retarded Mental Development.

Craniotabes and Hydrocephalus.—Here is a skull which belongs to the museum of the college. It is a beautiful illustration of rhachitical softening of the occipital bones. I have already spoken to you about craniotabes, but as this is such a fine specimen I could not resist exhibiting it. It is the skull of a child of three or four years. There are many perforations of the occipital bone and an im-

mense anterior fontanel. The peculiar shape of the forehead strikes you at once, being bulging and square in consequence of the hydrocephalic effusion. The holes in the occipital bone are to be accounted for in the line of my remarks at a previous clinic. A large amount of soft osseous structure is deposited under the periosteum in a rhachitical bone; the bone becomes thick, soft, hyperæmic, and when cut through, a large amount of blood oozes forth. The same hyperæmic state is present in the dura, pia, and brain, and all the tissues give rise to effusion. Thus it is that the rhachitical cranium is often complicated with hydrocephalus, of that form which under treatment will frequently get practically well. But imagine in a baby such newly-formed, thickened and softened bones of the cranium, the baby lying on one side or the other, or squarely on its back, and constant pressure being thus exerted, causing absorption of the soft osseous structure. After a time the entire thickness of the bone may disappear in places. In the same way ribs or other bones are sometimes absorbed under a pulsating aneurism. This skull is so large that it undoubtedly has been the seat of hydrocephalic effusion.

Purpura.—Do you see anything abnormal about that nose? Girl of about ten years. Student: "It is hyperæmic—shows some red spots." Is it a hyperæmic redness? "Only the lower part of it." Do you see anything on the forehead or cheek? "There are some remains of such spots on the cheek." Yes, and there are some similar red spots on the hands, arms and forearms, on the legs and all over—isolated red spots. Do you still think it is hyperæmia? "No, it is purpura." You answer the question by making a diagnosis. What is the difference between hyperæmia and hæmorrhage? "The hyperæmia is more uniform, and would not be present all over the body." The latter is not likely, but still it is possible. And you would draw the finger over the skin; if it were hyperæmia the pressure would cause it to disappear, which it would not do if it were hæmorrhage. Here pressure has very little effect if any, which would point to a real hæmorrhage. What very probably is the history of such a spot as this? "It comes out, lasts a few days or a few hours and disappears. It disappears gradually I think." Does it change its color? Have you ever seen the results of a street fight? "Yes, it does change its color." You see the spots, then, in different stages of

development. In a street fight you see immediately after a blow hæmorrhage under the skin which is red; now and then if it is in deeper tissue, or venous blood only has been extravasated, it is bluish. But usually it is red, and it will remain red for some time; a change will soon take place, the serum will be absorbed while the solid parts of the extravasated blood will remain, the hæmatin will change to bluish or purple, green, yellow, and then disappear. Thus you can say in this and other cases which of the hæmorrhagic spots is the older and which the newer. When the spots first come they are more or less red. According to the patient's statement it has been so in this case, for the redder spots have come very recently, while the darker, yellowish or greenish ones are older. According to the history the child has had several of these attacks, the first one occurring in July last. About three weeks ago toward evening a fresh crop of petechiæ was noticed, preceded by a slight chill, then by moderate febrile movement, after which the eruption showed itself. She also had pains in the various joints.

The child says the spots first appeared principally over the forearms, not so much over the joints. Closer inquiry elicits the fact that she first noticed petechial spots about two years and a half ago, in the winter, and they have appeared off and on each winter since, and again last July when successive crops came out for a period of about six weeks, then there was none until three weeks ago. The present attack is the only one, it seems, which was accompanied by fever, but in all there has been more or less pain in the joints. The spots are mostly at a distance from the heart over the hands, arms, and lower extremities, but few over the shoulders and face. That would seem to show that they are connected either with insufficient heart power or a peculiar condition of the peripheral blood-vessels, or want of innervation of the outlying provinces. That is at least a justifiable supposition. Although the heart may be at fault in some way, yet the hæmorrhages could not take place unless the blood-vessels were modified either in structure or innervation. Hæmorrhage may take place from fright or very severe emotion, but as a rule when there are repeated hæmorrhages which come in just the same way, you must conclude that the blood-vessels through which it takes place, it being always in the same localities, must be changed. I believe I have already spoken of the facility with which hæmorrhage takes place in the newly-

born and in small infants. There also it is the result of the blood-vessels being insufficient in structure. At the time the baby is born the tissues are still in a peculiarly soft, fragile, embryonal state, and the blood-vessels are very liable to rupture. We must assume that when hæmorrhages take place so frequently it must be the fault of the blood-vessels themselves. We can imagine that they were not well formed in the beginning; that, for instance, the elastic layer was not well developed. In many cases, for instance, we can prove that an aneurism will take place in just such a part of a larger or smaller artery as has been congenitally deprived of a good deal of elastic tissue. Such an aneurism will frequently be found just where a smaller branch leaves off, and it is in just such places where the elastic tissue has been found wanting. That might also explain why hæmorrhages sometimes take place in a certain part of the body. At the same time that there may be incompetent structure there may also be insufficient innervation, or there may be insufficient heart power which allows venous stagnation. There may also be at the same time some foreign invasion. That leads me to what has been said of late years of the recurrence of such hæmorrhages. Purpura, it has been claimed by some, particularly Babes, of Bucharest, to be the result of bacteric invasion. He claims to have found one and the same bacillus in every case of acute purpura. Now, it is possible there is such a thing here, but it may strike you as difficult to suppose the invasion by one and the same bacillus in a case like this where the attacks have extended over years. It is very much more probable in my mind that in such a case we have not to deal with an acute bacteric condition, but rather an original weakness of cardiac function and very probably an insufficient development of the blood-vessel walls. At the same time the patient has told us that she has rheumatic pains in most cases when she has had these attacks. So-called rheumatic pains may be acute articular rheumatism, yet it may be the result of nothing else than such hæmorrhages taking place into the joints or the articular ligaments. One form of purpura has been called peliosis rheumatica. It is accompanied with rheumatic fever and a good deal of pain about the joints and the purpura is present through the joint and about the joints. Now, is it fair to assume, particularly as such cases are not transformed into a real attack of acute articular rheumatism, that the synovial membranes are involved in the

hæmorrhages as well as the surfaces. Besides the two forms mentioned, purpura, and peliosis rheumatica, there is a third one of similar appearance, acute purpura, or morbus maculosus Werlhof. What is the difference between morbus maculosus and purpura? The former is said to be an acute disease attended with a great deal of fever. There is frequently hæmorrhage from the mucous membrane of the nose, from the intestinal canal, sometimes from the kidneys (bloody urine), into the brain,and so on. Though it be called a disease suigeneris, the anatomical conditions are probably the same as in the others just mentioned. Another form of the same affection is so-called scurvy. Here you have small and large hæmorrhages under the skin, hæmorrhages from the nose, from the intestine, into the brain, with all the results of cerebral hæmorrhage; convulsions and so on. That means a repetition of all the previously enumerated symptoms. In "scurvy," bleeding from the gums also takes place. But in all there is "purpura." When the bleeding has been from the gums it has been called scurvy; when there have been rheumatic pains it has been called rheumatic purpura, etc. I think it safe to say that all these different forms belong to one and the same class of phenomena, relating in part to the condition of the blood-vessels, in part to innervation, and perhaps in part or now and then to bacteric invasion. The identity of these forms becomes clearer when they are compared with what is known of scurvy in the infant.

Scurvy in the infant need not exhibit any bleeding from the gums at all. Hæmorrhages usually take place in the lower extremities, under the periosteum, etc., to such an extent as to cause the limb to swell to twice or three times its normal size. Babies that have no teeth seldom bleed from the gums, even some in whom teeth have formed do not bleed at the gums. So that scurvy in infants in one sense is quite different from that in adults, which was seen particularly in former times when voyages at sea were long and the diet mainly salt food. But what I wish to impress upon your mind is that scurvy, purpura hæmorrhagica, or morbus maculosus, and rheumatic purpura are one and the same thing, a fact of great importance in diagnosis and treatment. The names, however, are useful in description, although describing conditions which depend upon the same causes.

What can we do in a case of this kind? The fever has certainly gone down by this time. We ought to examine

the heart. There is no murmur in this case. If we should find incompetency of the mitral valve we should conclude there was a good deal of stagnation in the outlying provinces. And that explains in part perhaps the facility with which hæmorrhages often take place. But there is no evidence of it here; there is no murmur, there is but little enlargement. But it seems the heart impulse is rather strong compared with the very feeble pulse. Here I may remark that you should examine as many normal people as you can, for one cannot judge of an abnormal condition unless he knows the normal.

I have yet to say something about the probable condition of the blood-vessels in this case, and it is one of the most interesting subjects in pathology. It strikes me that her heart is fairly normal in size and that its impulse, although she looks weak, is rather strong. It strikes me that the radial artery is small, and even the carotid is unusually small. If the carotid and radial are small, it is fair to assume that all the arteries in her body are small. Now, what would be the immediate result of the heart being of normal size while the arteries are small? The heart is contracting and there is not sufficient lumen in the arteries to allow the blood to pass along. Therefore, the heart exerts a greater impulse upon the arteries than is usual. It may also have struck you, as it did me on listening to her heart that its sound was muffled and not as clear as normal. That muffled sound is heard when the muscular tissue of the heart is changed, as when there is a slight degree of fatty degeneration, or some chronic myocarditis. It is not the sound produced by endocarditis or the murmur of mitral insufficiency or stenosis of the ostium, for there you have to deal with a distinct murmur.

It is probable that she is given to attacks of weakness if not to fainting spells, because the brain is insufficiently supplied with blood; that she passes a smaller quantity of urine than the normal because the renal arteries do not carry sufficient blood, and so on.

In such a case there probably would be venous stagnation, although there is no valvular incompetency, but simply because the arteries are so small. That would be an additional reason why in her case there should be purpura month after month for two or three years. We know not only clinically but also from autopsies, that in many of these cases there is smallness of the arteries. And if the case has lasted for some time the heart is apt to be

found in a state of fatty change, although it may not be much enlarged. The same anatomical conditions have been found in some cases of puerperal endocarditis and in chlorosis. The incurable forms of chlorosis in the female, and also in the male, are those that depend on insufficient size of the arteries, the heart being either also small or in some abnormal condition. This condition of things was studied by Virchow, thirty years ago. Sée, of Paris, has followed him, and a number of observations have been made in which chlorosis, pernicious anæmia, essential anæmia, have been found to depend on absolutely nothing but insufficient size of the arteries with fair or insufficient development of the heart. At any rate, all these conditions would seem to have to do with this girl's purpura.

Question, what to do with such a heart and such arteries? She wants first absolutely good nourishment. She must have some exercise, but not to fatigue. She must have some heart stimulant to enable the heart to get a little more blood into the arteries and make the insufficient arteries do their duty. What heart stimulant? Is it digitalis? It does not strike me that digitalis is the proper thing, for it is known to exert a stimulating effect on the heart and arteries at the same time. While thus stimulating, some spasm might be excited in the smaller arteries so that the circulation would be made worse than it was before. That is the reason why digitalis is so dangerous in atheromatous degeneration of the arteries. You never know when you are safe in giving digitalis. Some will tolerate it, but the large majority will not, because it stimulates not only the heart to contraction, but also the inelastic hardened arteries when these are atheromatous, so that not infrequently you will find your case getting worse instead of better. In that event you will have to select something which will act on the heart more than on the arteries. Strophanthus is one, spartein another, and nitroglycerin will do.

If she take a heart stimulant I would advise strophanthus at first. She might take five or six drops of the tincture three times a day, and if it were found that the pulse got a little stronger and she, however, needed more, she might take four or five doses. Do not forget it is not the blood that gives rise to hæmorrhage, it is the condition of the blood-vessels. Yet the condition of the vessels depend upon the nutrition furnished by the state of the blood, and thus a person may be more apt to bleed

who has less or insufficient blood. A person with anæmia or hyperæmia is more apt to bleed than one in health. Not because the blood escapes more easily, but because the blood-vessel walls have become incompetent to hold it.

Iron is likely to do her good, but phosphorus and arsenic would probably do better. She might take the one seventy-fifth of a grain of arsenious acid after meals and four doses a day of one minim each of the oil of phosphorous of the pharmacopœia. Instead of arsenious acid one might give her two or three drops of Fowler's solution after meals, largely diluted, and instead of the oleum phosphoratum of the Pharmacopœia, the elixir of phosphorus of the National Formula, half a teaspoonful three or four times a day.

Tubercular Peritonitis.—This boy is three years and-a-half old. His abdomen is much enlarged, dating back six months to an attack of measles complicated with pneumonia. There is no history of alcoholic excess, but there is of excessive coffee drinking. He has had a moderate temperature for several weeks past.

Physical examination of the thorax shows dulness over right side anteriorly above the liver. As there is ascites it probably has pushed the liver up, which crowds upon the lung, compresses it, thus perhaps causing the dulness. There is ascites, without dropsy of the lower extremities, of the face, or upper extremities. What should we conclude from that fact is the cause of the ascites? An ascites may be due to a process in the liver, to a tubercular, carcinomatous, or other form of peritonitis, to heart disease, to kidney disease, and so on. It cannot be due here to heart disease, for that would cause dropsy of the whole body, as of the face and lower extremities. Nor is a local dropsy due to kidney disease. A local dropsy must have a local cause, and it being here an ascites, the cause must be below the diaphragm. It is either in the liver or in the peritonæum. It has been suggested by the gentleman who sent the case for our investigation, that it may be cirrhosis, and I may state here that cirrhosis of the liver is not so infrequent in little children as you may suppose. We generally find cirrhosis due to alcohol. Cirrhosis of the liver or interstitial hepatitis, is commonly spoken of as gin drinker's liver. And it has been established that a number of cases even in children were really due to alcoholism. Some boys will drink, and babies

have sometimes had cirrhosis because of the painstaking care of the medical practitioner who supplied them with sufficient stimulants during a protracted illness. It is well to bear such facts in mind. But there are other cases in which ascites has been due to liver disease exclusively and of a different nature. For instance, syphilomata and atrophy of the liver in consequence of hereditary or acquired syphilis will lead to ascites. That is it will obstruct the hepatic circulation, cause blocking up in the portal vein, splenic swelling and peritonæal effusion. The cause may be and is in some instances, cirrhosis, but in many where that diagnosis has been made the autopsy has shown a different state. In rare instances it has been carcinoma of the liver, but more frequently it has been tuberculosis. Tuberculosis will frequently affect a single locality and remain there for years. For instance, tuberculosis of bone is very frequent in children, and it may stay in one joint or bone for months, and even for years, before it spreads. So it may take place in the peritonæum and remain there without affecting neighboring organs at all, particularly without affecting the lungs. A number of such cases as the present one heal, no matter what you do if only you give the patients rest in bed and feed them well.

Some bear iodide of potassium or iron very well. This patient should have some arsenic, cod liver oil, plenty of beef and other suitable food, abundance of fresh air.

A number of these local cases of tubercular peritonitis have got well of late years by simply having the abdomen opened, the ascitic fluid discharged, and the abdomen closed again. That can be done whenever no evidence of the disease elsewhere can be discovered and other treatment has failed. But the unfortunate part is that tubercular peritonitis need not remain local long; other parts will become affected, and in the case presented to you the child had measles six months ago, pneumonia on that, and coughed for some time afterward. That history makes me very suspicious of the slight dulness which now exists over the right lung. The child is very pale, too, so that it is not unlikely it has tubercular peritonitis, pulmonary and glandular tuberculosis. It is possible that a part of the dulness over the lung is due to swelling of the mediastinal lymph bodies.

To repeat the treatment briefly, it would be for this baby rest in bed, fresh air, good food, watching the temperature, not allowing it to go up too high; a little digi-

talis to keep the heart in good working order, a little arsenic as a tissue builder, guiacol rather than creasote, say one drop three times a day and later four, five, or even six times a day in water or milk. If the ascites increase, paracentesis must be practiced, but if the lungs should be found in healthy condition laparotomy should take the place of paracentesis. Unless the child improve some operation should be done to let the fluid out of the abdomen soon. It is very probable the circulation is much interfered with now, as is the action of the lungs and heart from pressure on the diaphragm.

Retarded Mental Development.—Will you observe the appearance of that child's face? A boy of three years. The face and head are broad, without great height, and the head is flat. That would mean there is probably not room enough in the cranium for a normal brain, or rather that the normal brain may be compressed. The nose is broad, retracted, not elevated as it should be. The vomer being short, and being in contact with the base of the brain, you may imagine at least, not having seen it, that the distance to the brain from the flattened nose is short. Then there are certain indications of rhachitical development with premature ossification of the cranial sutures. In a number of cases general rhachitis is accompanied by premature ossification of the bones at the base of the skull, so that the base of the brain has not opportunity to expand, and the distance from the occipital spine to the root of the nose remains short. The flatness of the nose is accompanied by a hardened, flat, and broad palate. Thus we have in the case a flatness of the hard palate, a short vomer and retracted nose, synostosis, especially between the sphenoid and occipital bones, flat parietal bones, a short skull and a narrow skull above. The result is insufficient development of the cranial cavity, and a mild case of so-called cretinism.

Cases of cretinism which you read about occurring in Switzerland and elsewhere are usually more marked than this one, and are apt to be accompanied by goitre. Here we probably have to deal with only an accidental degeneration. The mother says she has one more child, a baby of seven months, and that it is doing well. She says this child was eighteen months old when it had its first tooth. That is one indication of insufficient development or of rhachitic development. As you probably know, babies usually have the first tooth between the seventh and eighth

months. She did not notice whether the fontanels were open long or not. There is a slight curvature of the long bones and large epiphyses. The child has been brought here because it does not talk. The hearing seems good enough. It also wets itself. Although it does not talk it shows considerable attention and liveliness. One of you suggests that the inability to talk is due perhaps to imperfect development or pressure in the region of the island of Reil. Some children learn to talk rather late, but it is quite possible in this case that there is more pressure than the organ of speech can bear.

You suggest that treatment be directed to the rhachitis, and that an operation on the skull would hardly be indicated. That is true; enough operations in more or less similar cases have been performed the last two years to answer for the next fifty years. The curvature of the long bones call for no interference; it is not excessive and will become less as the boy grows older, for he is now practically over the active age of rhachitis. Still, it is possible that after three or four years an osteo-plastic operation would be indicated. The child should be in good air by day and night, he should have a cold wash every morning and be rubbed down thoroughly afterward. He should be given plenty to eat, cod liver oil during the winter and some nerve stimulant, as phosphorus, arsenic, or strychnia, and a general anti-rhachitic treatment. The mother can be consoled by the fact that plenty of us did not talk before we were four or five years old, even girls, and a boy must have a year longer. With training this boy will probably learn and manifest a fair amount of intellect.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Syphilis of the Bones. Syphilitic Lesions. Vascular Tumor of Cheek. Sarcoma of Spleen.

Syphilis of the Bones.—This girl is three years and a half old. The history which has been obtained is so conflicting that it is hardly worth while to take it into consideration at all. You will notice swellings over the knees, over the tibiæ anteriorly, also at some of the tarsal and carpal joints. The examination causes some pain, and should be made carefully. There is also a depression in the palate, the uvula has disappeared and at the site which it should occupy is a yellowish gray discoloration.

Syphilis of the bones in small children may start at different points; it may begin in the mucous membrane, say of the palate as in this case, in the skin, in the periosteum, in any case it is the same process, presenting a different appearance only because of the difference in the structures involved. In a number of cases you will find softening of the tissues, in others hardening, in others suppuration; in bone there may be primary caries. When the periosteum is first attacked it is hyperæmic, and the exudation is not quite like an inflammatory exudation. It looks more waxy, amyloid, and grows very fast. If the periosteum be raised from the bone, torn off, the process is often accompanied by hæmorrhage. A diffuse periostitis may set in and is frequently very painful even to slight pressure. In a number of cases syphilitic periostitis will affect the bone in the immediate neighborhood, so

that when the periostitis terminates in ulceration there is at the same time ulceration of the bone. It appears that over the hard palate in this case there was first an affection of the mucous membrane, then the periosteum became thickened, then the bone became necrosed. The necrosis of bone frequently proceeds to such a degree that the tissue either disappears or spontaneous fracture takes place, or there may be in the course of time what is called eburneation, great hardness of the bone and absence of pain in it. In a number of cases all those conditions are seen together: that is, there may be caries in one bone, eburneation in another, osteoporosis in another. Again, there may be gummatous deposits in the bone. This is particularly liable to occur in the cartilages between diaphysis and epiphyses. In such cases spontaneous fracture is just as frequent, perhaps more frequent than in osteoporosis where the bone-structure is rarified and liable to fracture by contraction of the muscles or by the weight of the body. A most peculiar effect on the bone is that which has been described by our Professor R. Taylor as syphilitic dactylitis, involving the fingers, rarely the toes. It is attended by swelling and exfoliation of bone, so that the fingers become shortened and clubbed. Before him but little was known of this condition.

In answering the question what should be done in such a case we must remember that there is a very imperfect history. We do not know how many miscarriages the mother had; nor how old the child was when the first symptoms appeared; nor whether there was an eruption. We simply know that we have to deal with a multiple affection of the bones and periosteum, and of the mucous membrane of the mouth involving the loss of the uvula, and a loss of part of the soft and hard palate. One of the forms in which syphilis affects the bones is not present in this case, namely, so-called spina ventosa, a condition in which only the external shell of the bone is left. The external shell mostly of the phalanges of the fingers, is left simply because the periosteum has not been destroyed and throws out some new bone. Very frequently after the disease has lasted for some time the ulceration destroys the periosteum too, and then a large cavity is left which is easily accessible and suppurates all the time. Finally the limb itself may be destroyed.

There is no doubt but that this case is of syphilitic nature, and we return to the question of what to do. The child ought to have absolute rest. She ought not to walk

on the limb, for we cannot tell to what extent there is gummatous degeneration and when the bones may break down. She has already been put under antisyphilitic treatment. Iodide of potassium ought certainly to be given, but it may be a question whether mercury should be given at the same time. When I do not see the patient for sometime, say not oftener than in intervals of four or six weeks, I guard against possible evil effects of iodide of potassium by alternating it with corrosive sublimate every week or ten days, giving one drug at a time. The baby is old enough to take from fifteen to twenty-five grains of iodide of potassium a day. As a rule the iodide of potassium is well tolerated by children, but if for any particular reason it could not be given the iodide of sodium might be substituted.

Iodism is very rare in little children. Whenever iodism occurs, that is a severe attack of conjunctivitis or rhinitis attending the administration of iodide of potassium, you can mostly limit it, if not cure it, by giving at the same time chlorate of potassium. This child might take from fifteen to twenty grains of chlorate of potassium in the twenty-four hours and suffer less iodism. If the stomach should not bear iodide of potassium you might, as I have said, try iodide of sodium, and if this should also prove obnoxious you might add some bicarbonate of sodium or a little strychnine. I have frequently found that strychnine in fair doses, say for this baby the fortieth of a grain in twenty-four hours, makes the iodide of potassium much more endurable. In alternating bichloride with iodide of potassium every six or ten days, this baby might receive from a fifteenth to a twentieth of a grain of the corrosive sublimate three times a day according to the effect produced. That the interruption of the iodides for a few days is safe may be shown by the fact that iodide is still present in the urine from three to six days after the administration of the drug has been omitted.

Syphilitic Lesions.—Here are two children which have been brought by their mother. The first is a baby of eighteen months. It is natural for every normal tongue to be somewhat "furred," but this one is not so at all; there is only a streak of fur at the sides and a triangular space behind where the epithelium has not yet been cast off. But you notice that where the coat still remains it is too thick, it is abnormal. So there seems to be something abnormal not only in the loss of epithelium but also in the retention of it. This particular condition, where

there is an unusual amount of epithelium in irregular spots and denudation at other places, has been called psoriasis of the tongue. A large majority of the cases are not syphilitic, but there are undoubtedly cases in which syphilis is the cause. Here our attention is directed to the fact that a good deal of the scaly hair has been lost; there is alopecia, not "areata" as the spots are not particularly circumscribed, but there is loss of hair almost complete in some places. A more marked alopecia is frequently seen in the syphilis of adults, and it sometimes is present from parasitic disease. I should advise the mother to cut the child's hair frequently; by so doing she will undoubtedly improve the vigor of its growth.

The other baby is about ten months old. It had lost its finger nails, but they have grown again since it was under treatment. On the lips and in the mouth there are granulations and perforations of the mucous membrane and some sessile papillomata, so-called mucous patches which are characteristic of specific infection. The child has been under treatment since its birth by the doctor who attended the mother's confinement. We are told that when the baby was a month and a half old the mother noticed its finger nails become black, and about the third month they fell off. Later an eruption developed over the body which lasted about a month and disappeared under treatment. Since last July the mother has noticed a patch on the lips which is present yet.

Regarding the treatment, we are told that the older child was given a tenth of a grain of calomel since October, probably three times a day; this is also the amount it has received of late. It is said the child improved until a short time ago and then there was a relapse. But the evidence of a relapse, we are told, is that the denuded patch on the tongue became more diffuse. Regarding that point I have already said that psoriasis of the tongue is sometimes specific, more often it is not. Even in cases where it started out specific, it may remain as an independent affection, and be due to debility of the epithelial surface or to a microörganism; still a microörganism is said to be the cause more often than can be proven. The psoriasis, when it persists, is a low inflammatory process, is very obstinate, resisting all treatment for years, and you may meet with patients who never get rid of it. Diseases of the mouth are liable to be very obstinate. A man was in my office this morning whom I have known ten or twelve years, and once or twice a year he will come with a disease of the tongue which some-

times looks like herpes, sometimes like eczema, and after it has lasted a few days ulcers appear which are very painful. They also appear on his lips, on the gums, on the inner side of his cheeks down into his throat. Frequently they come in half a day or a day like an acute disease, sometimes with a little fever, sometimes with no fever, and they go away very slowly. He says he has at times suffered with it for months in succession.

In this child's case the psoriasis of the tongue is probably now the result of two factors: First, a peculiar debility of the tissues which are subject to frequent inflammations and break down very easily; second, it is at the same time a neurosis. A neurosis will frequently show itself as an acute eczema of the skin, still more frequently as an acute herpes. So it shows itself in the mouth in this case. In the case of the man whom I saw this morning there is a peculiar complication; that is, he is sexually very poorly developed. The testicles are very small, the pubes very little raised and covered with hair but very sparsely. Very frequently brain and nerve diseases are attended with insufficient development of the testicles and genital organs generally. In this case I believe the neurosis depends a good deal upon insufficient innervation shown by imperfect development of the genitals. The man says he is perfectly well otherwise, but when he works he all at once gives out; he may be feeling perfectly well and yet have to give up to sleep. That occurs very frequently, several times a day, particularly the first weeks when his eruption is out. So that it seems there is insufficient development and insufficient resistance of the nervous system in a man who, though well formed, has a peculiarly pale, thin skin over the whole surface of the body.

Vascular Tumor of the Cheek.—We are told that the trouble of this boy, who is twelve years of age, dates back one year. The whole left cheek appears to be larger than the right, and a circumscribed, slightly movable tumor, at this examination not of large size, can be felt in the cheek. But when he leans forward the swelling becomes much larger and more tense. As he rises from the stooping posture and you hold the finger against the tumor in the mouth, it is noticed to gradually become smaller, and you are able to accelerate its reduction in size by gentle pressure.

The tumor, whatever it is, must be connected with the tissues in the cheek. There we have mucous membrane,

submucous tissue, some fat, muscles, blood-vessels, nerves, lymphatics, skin. If the tumor were connected with Steno's Duct, as one of you suggests, it would not swell on stooping and diminish on rising. No, it is evidently a vascular tumor, the blood-vessels being dilated and the surrounding tissues elastic enough to allow of enlargement when the blood runs in and to contract when the blood runs out by posture or otherwise. It is a very interesting case, and you will not be likely to see many like it.

It is not superficial, for neither the skin nor the mucous membrane of the cheek is specially changed in color. So there is a circumscribed angioma, which very probably was quite small at birth and has increased to considerable dimensions since. The mother did not notice it until about a year ago, two months after a tooth was drawn. While she seems to think there was some connection between the pulling of the tooth and the appearance of the tumor, it is probably about as baseless a supposition as that all the numerous diseases attributed to dentition are really due to the cutting of the first teeth.

Regarding treatment, excision would, I believe, be a very poor procedure in this case and it would not be attended by less deformity than the use of the actual cautery. Excision, too, would probably be a very bloody operation. We will see the boy again before resorting to treatment and will have time to think about the case, but it is my impression it can best be treated by the actual cautery, introducing the cautery point and turning it about in the interior of the cheek at the seat of the tumor, thus destroying a large mass internally while leaving but a small scar externally.

Sarcoma of the Spleen.—This baby, an Italian child about ten months old, has a swollen spleen. You will remember what I said upon this subject when speaking of leukæmia and pseudo-leukæmia, and that I spoke of counting the number of the blood cells. I have done that in this case, and found there are still four million, four hundred thousand blood cells in a cubic millimeter of blood, the normal amount being five million and a half, in the adult, and less in the child. Besides not being reduced much in quantity considering that the baby is emaciated, the cells are also of normal size and shape. There were a few more than the usual number of leucocytes, twenty-four thousand instead of twenty thousand to the cubic millimeter of blood, as found in the adult, and about half

as many in the child, so we can say positively that we have not to deal with leucocythæmia, and that we have not to deal with pernicious anæmia.

The spleen here is large and feels hard. It is very difficult to percuss the spleen in the child when it is only slightly enlarged. As a rule it is found on the left at about the eighth and ninth intercostal spaces extending backward and downward to about the level of the eleventh rib. But in a number of cases, the liver being large, the intestines are very tympanitic and extend over the spleen, so that there will be a tympanitic percussion sound and the outlines of the spleen cannot in that way be determined. Moreover, you cannot well palpate it in many cases in children, whereas in the adult by pressing gently and firmly under the ribs on the left side during deep inspiration the spleen can be readily felt descending and rising again with expiration. It is more noticeable in proportion to the degree of enlargement when it exists, as in typhoid fever, malarial fever, etc. In this baby's case the spleen is very much enlarged and can be both percussed and palpated below the free border of the ribs.

The question arises, what is the cause of the splenic enlargement? We have excluded leucocythæmia. There is no history of malaria. Let me say a few words here of other anomalies of the spleen. One of the rarest anomalies is absence of the spleen. Now and then there are seemingly two or three spleens, the fœtal lobulation of the spleen persisting in after life. Indeed as many as fifteen and even twenty-seven lobulations have been observed. The lobulations remain so deep sometimes that they give you the impression of supernumerary spleens, just as it sometimes occurs with the liver. In a few cases it has been found that the spleen was enlarged at birth. It has been observed in babies when the mother had been affected for months with intermittent fever. In this case, however, there has been no history of malaria. It might result from a previous typhoid fever or relapsing fever, but these, again, are excluded from the history. As we cannot fall back on any acute disease we shall have to turn to a neoplasm as the explanation of the case. Neoplasms of the viscera are not very infrequent. Cohnheim, because he saw so many cases of tumor in infancy and childhood, attributed them to the persistence of a number of embryonic cells, or their failure to undergo a change into the normal tissue of the parts in which they might be situated. Imagine what takes place in the em-

bryo: The embryo in the beginning is only a compound of a number of embryal cells. Not until a little later is tissue formed out of them. Now, through faulty growth a number of these cells may be prevented from undergoing the normal changes. A nest of them may then be wrapped up and concealed in the normal tissue which has since developed. Then in after years through some means or other new life gets into such cells and they proliferate into a neoplasm, such as carcinoma or sarcoma. Most of the tumors which we find in early life are either carcinoma or sarcoma. That, then, was the theory of Conheim, which may be true for a number of instances but which certainly is not the explanation for all cases.

Undoubtedly we have in this case a tumor of the spleen not of benign nature. In some instances the tumor, even when congenitally present, has remained dormant for weeks, months, or years. I have seen sarcoma, particularly of the kidney, remain dormant for years and afterward take a start and grow very fast.

This is not a case of perisplenitis, as the child never complained of pain. When acute inflammation of the covering of the spleen exists it is very painful. Sometimes it results from a blow or an embolus, or some other cause of hæmorrhage which results in rapid increase of the organ.

Again, there is no cystic degeneration nor abscess in the tumor in this case; no fluctuation can be discovered; the tumor is hard. We have then to decide between carcinoma and sarcoma. If it were carcinoma the baby probably would have died ere this; or at least, if it were carcinoma there probably would be by this time numerous metastatic deposits in various parts, especially in the glands. The latter are not swollen. The baby, then, has sarcoma. If good care is taken of him it may be a number of months before the end will come. We may even influence the tumor to a certain extent by treatment.

I have not found that the aniline dyes, particularly methyl blue, which is sometimes beneficial in carcinoma, have much influence on sarcoma. Arsenic is the drug which we shall have to depend upon. The baby should take a drop of Fowler's solution largely diluted three times a day, increasing the amount every few days by a sixth to a quarter of a drop at each dose, so that in time two, three, or even four drops will be taken. At the same time good food and general hygiene will lengthen the child's days more or less.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Angioma of the Face. Cardiac Disease. Malarial Fever. Stomatitis.

Angioma of the Face.—This little girl is presented again to show the results of the treatment of an angioma of the face by the actual cautery. You will remember the statement that she had been thus treated a large number of times in England, and seven or more times here. Since the last time you saw her and several weeks since we last used the cautery, the tumor has continued to contract, to diminish in size, and we will postpone further treatment for a time yet. You observe that there is great joy exhibited by this little one as she is told she can go ; you will find on going out into practice that the little show great joy when the doctor leaves the house. Therefore do not make long calls if you can help it.

Cardiac Disease.—If you wish to learn all that you ought about clinical medicine you must see your cases more than once. This little girl, ten years of age, was presented here five weeks ago for excessive ascites and a moderate degree of œdema of the lower extremities. At that time cardiac disease was discovered There was a mitral regurgitant murmur ; that meant insufficiency of the mitral valve. You have answered correctly that the natural result of mitral insufficiency joined to a high degree of hydræmia would be a weak pulse, may be a thready and irregular one, that the venous circulation would be slow, the veins entering the heart would become dilated and in bad cases the veins all over the body would be dilated ; that the organs to be first affected would be the lungs. There we would first have hyperæmia and a pulmonary or bronchial catarrh. The occurance of bronchitis or pneumonia in mitral disease is very bad because of the degree of venous obstruction present even without and before this occurrence. Again

you have answered correctly in saying that beyond the lungs the first effect would be upon the vena cava inferior; this would obstruct the return flow from the liver, produce enlargement of that organ and dilatation of its vessels. The parenchyma of the liver and the structure of its peritoneal covering is very expansive; the liver will swell like a sponge, if not, then the tension will be so great that there will be pain and also a certain degree of perihepatitis. Thus it is that in a number of cases in which the liver swells considerably there is no pain whatever, whereas in some cases in which the swelling is small in proportion to the disturbance, there is considerable pain because of want of expansibility of the parenchyma. In this patient's case there has not been much pain. The circulation of the liver being interfered with, the blood backs up in the portal vein and this causes congestion of the organs from which it collects the venous blood.

In the stomach there will be produced different forms of gastritis and indigestion. This accounts for the fact that very frequently gastritis is benefited, though not cured, by cardiac stimulants. Instead of giving only bicarbonate of sodium or other remedies intended to act upon the stomach directly, you would also give digitalis, strophanthus or others. The same would be true of the pulmonary symptoms; instead of giving remedies intended to influence the respiratory organs alone, you would give a heart stimulant. In a large number of cases there is not only gastric catarrh, but also intestinal catarrh. In some cases there is constipation, but more frequently the intestinal catarrh leads to diarrhœa. Diarrhœa following and depending upon disease of the lungs or heart is a very ominous symptom. Going a step further, we may see the hemorrhoidal veins affected, and in adults especially we often find local treatment ineffectual, whereas by emptying the bowel and then relieving the venous obstruction by treatment directed to the heart the so-called hæmorrhoids, as long as they are merely varicose dilatations of the veins, are caused to disappear more or less completely.

In the case of the patient before us, treatment has been directed to the heart and she has been given rest in bed, with the result that the œdema of the lower extremities has disappeared, her ascites is much less, and the liver not so large. Normally in the fœtus the liver can be felt down about on a line with the umbilicus, while in the newly born it can easily be felt below the ribs, and in an infant of a year, though the organ be considerably reduced

in relative size, it can only yet easily be felt by pressing the fingers beneath the ribs. In the present case there is sufficient enlargement to enable us to map out the liver easily an inch below the level of the ribs. In a liver which is the seat of amyloid degeneration or the infiltrated form of cancerous disease you can hardly ever run the finger underneath its edge as you can do here.

As to treatment, aside from rest and food, it will have to be directed chiefly to the heart. The infusion of digitalis might be given, and be replaced after a time by strophanthus, or spartein, or convallaria, permanently or until any gastric symptoms arising from digitalis had subsided. But the principal remedy in her case must be absolute rest. You ought never to treat an acute or subacute heart disease without enjoining absolute rest. The patient ought not to be allowed to leave the bed a single instant. The most dangerous cases are those in which the muscle of the heart rather than the endocardium is affected, and the greatest pains must be taken to prevent unnecessary exercise. Such a patient as this one ought not to be allowed to leave the bed even during defecation and micturition. A number of cases that have died suddenly from heart disease might have been saved had they not been allowed for several weeks to leave the bed.

This girl, then, ought to be kept in bed for some time; her bowels should be moved by a daily enema. She should have digitalis. In the short time during which this treatment has been applied her ascites has become much reduced and she has improved in every way.

In such cases you will always be asked about the prognosis. Of course, the heart lesion is incurable, but the symptoms may decidedly improve or entirely disappear until further provocation. In the case of this patient the heart is not markedly enlarged, and what enlargement there is is due to hypertrophy. It is possible, therefore, that the compensatory increase in the heart muscle will facilitate the circulation in the future so that the liver will become still more diminished in size. I think that the very fact that her liver tissue is expansible, that the peritonæum has given way over the swelled organ, has prevented her condition from becoming worse. You can imagine that if there had been more resistance in the liver the heart would have been exerted more than it has been in trying to overcome the obstruction, so that the spongy condition of the liver was really the safeguard of the heart. Insufficiency of the mitral valve and moderate hypertro-

phy of the left ventricle is not so dangerous after all, particularly when it takes place about this time of life. About puberty, when the heart grows fast, and the arteries grow even faster than the heart itself, compensation is very much facilitated. In three or four years the arteries in her case will become much larger than they are now, much more blood will be stored away in them relatively, the general circulation will be much facilitated and the heart will have less work to do. I know now a man who when a child had heart lesions with symptoms more or less like this girl's, but who is still living and doing an active business, being quite well although he has a mitral murmur. So in this case, it seems to me the enlargement of the liver and the ascites are not such bad symptoms as under other circumstances they would be. The child should have no wine, no beer, no liquors at all, and no tea or coffee, no cabbage or fresh bread, nothing that will fill the abdomen or cause gaseous distention and interference with the free movements of the diaphragm and thereby with circulation. Give her broiled meat, milk, oatmeal, barley, the juice of orange, some stewed fruit. Let her eat and drink slowly. Make her take her milk from a spoon.

CASE III.—Here is another case of heart lesion. The boy is ten-years-and-a-half old. He gives a history of having had "growing pains" occasionally the past year. Eight years ago he had scarlet fever; six years ago measles. During the past eight months he has had palpitations and shortness of breath. No syncope.

On auscultating the heart we hear a double murmur, one presystolic, the other systolic. You can see the heart beat against the chest wall which you could not do in the other case because of a thick plaster which the anxious parents had put over the surface. The heart in this boy is enlarged, though not extremely so. The diastolic and systolic murmur signifies both contraction of the mitral orifice and insufficiency of the mitral valve. The interference with the passage of the blood from the left auricle through the stenosed mitral valve would cause overwork and hypertrophy, finally, of the right ventricle.

Looking at this boy's chest it is observed that he has somewhat of a pigeon breast; the ribs are pressed in more than the cartilages, or, rather, the cartilages being softer they are pushed forward and the sternum is lifted out. The sides, too, are contracted, and the whole result is that the chest is no longer elliptical but has become tri-

angular. After awhile the cartilages will become ossified in this position and the peculiar form will then remain for life. The grooving noticed above the diaphragm is the result of the pulling inward by that muscle, and the atmospheric pressure, during respiration at a time when the rachitical process was acute and the bones flexible. The heart in such a case appears to be larger than it really is because the chest is no longer elliptical and the pulsations come more forcibly against the walls. Even when the heart is absolutely normal it seems to be larger in the rachitic chest which is flattened at its sides than it is found to be at autopsy. The liver in this boy's case is felt lower than usual, partly because it is somewhat enlarged, and partly because its space has been much encroached upon by the organs above, and the narrowed lower part of the chest.

The boy has had scarlet fever. In all such cases the urine ought to be examined. If there were nephritis the cardiac hypertrophy, if it were principally of the left ventricle, might depend upon that instead of upon the valvular lesion. When the kidneys are cirrhotic or in a state of diffuse chronic inflammation the circulation in the renal artery is so much interfered with that the work of the heart pushing the blood forward is so increased that hypertrophy frequently occurs. It has been said by a few modern authors that there is no connection between diffuse nephritis and hypertrophy of the heart. I refer to this assertion simply that those of you who may have stumbled over it in their reading may know that I am not ignorant of the fact. But that assertion is no proof at all and does not do away with the fact that hypertrophy of the heart and chronic diffuse nephritis frequently go together and depend on each other. It is especially so in childhood. After fifty or sixty years of age chronic "Bright's" disease depends upon quite a different cause; at that time heart disease and kidney disease both depend mostly upon the same cause, a sclerotic degeneration of the arteries.

Malarial Fever.—The history in the next case is that the child is two-years and-a-half old. About four weeks ago it began to have chills, and had a chill every day until the 27th of December, the last one having occurred about forty-eight hours before it was brought to this clinic for the first time. It had received quinine. Soon after coming here the child vomited once and became jaundiced.

It is probable that the jaundice had no special connection with the chills; that it was due to an additional catarrh of the duodenum and stomach. But we are told the child got seven grains and a half of quinine. That may have been too much for its stomach and set up the catarrh; at all events we have to consider that possibility. It appears that the baby had chills; that it took quinine and they ceased; then they began again. The sudden stopping of the quinine is probably what brought the chills on again. Where you have to deal with malarial fever, no matter whether the type of the chills be quotidian, as in this case, tertian or quartan, you must not stop the quinine at once. From a somewhat prolonged experience I would act somewhat as follows: In the tertian type of intermittent fever give an adult quinine ten or fifteen grains, say three or four hours before the time of the attack if that time were known, or a little earlier if the attacks were in the habit of returning at an earlier hour. In most cases it would be safe not to give another dose until the second attack was due. So I tell the patient that if he expects his attack at 3 P. M. to take ten or fifteen grains of quinine at 11 A. M. Then if he does not have a repetition of the attack, let him take a dose after two days, four days, after that six days, and so on, after the last dose adding two days each time until thirty or forty days have passed during which time he has taken about six doses of quinine. Thus a drachm of the drug will cure the patient if it be administered properly.

It is possible the quinine had some influence in producing a gastro-duodenitis in this case, with jaundice. Afterward the quinine was omitted altogether, which I think was a mistake. If the stomach would not bear it, perhaps the rectum would. If neither the stomach or rectum would bear it, it might be used subcutaneously. Inunction with quinine, which has been recommended a number of times, is so uncertain in its effects, though you dissolve it and rub it in with the aid of lanolin, that it ought not to be resorted to except when there is no other means left. Besides, you cannot know how much you give through the skin, if any at all be absorbed. I have injected a good deal of quinine subcutaneously, and have learned one way in which it should not be injected. At autopsy in one case I found the quinine stored safely away in the skin, not absorbed at all, due to the fact that a very concentrated and acid solution had been used, the liquid having been absorbed while the quinine remained. In that way, of course, it could have no effect,

just as so-called sugar-coated pills have no effect when they are made up with gum tragacanth, and pass out with the movements absolutely unchanged. So you see the question is not only about the remedy you give, but also the method of administration. The quantity, also, is of great importance in medication. These are some of the reasons why you have to be very careful in the use of the samples left at your office by magnanimous and generous wholesale manufacturers. Unless you are perfectly sure of the reliability of the drug, and its quantity and solubility, or unless you follow strictly the U. S. P. or the National Formulary—which I try to do as much as I can—you will find it necessary to observe great care. As for this clinic, we never failed to rely on the U. S. Pharmacopœia and the National Formulary; they are staunch friends, ask no favors and promise no miracles.

We will now examine this baby physically. The liver is large and we learn also that the baby once had diarrhœa. I have before remarked that fatty degeneration of the liver is pretty common in children. It is common after protracted diarrhœa, and also after protracted hæmorrhages, particularly from the bowels. It is possible the large size of the liver present in this child is due to that cause, at least in part, and not wholly to malaria. If it were a case of malaria we should expect to find some enlargement of the spleen also. But it is not so easy to say that the spleen is not enlarged in a small child. If you can feel it you may be assured that it is enlarged. It can be felt a little below the ribs in this baby, which proves better than any percussion could do that it is enlarged. The probability increases that we have to deal with a case of intermittent fever. Had the blood been examined for the plasmodium before quinine was administered doubtless it would have been found. I would propose to give another dose of quinine before a new attack comes on, for if a single new attack should occur all our previous treatment would have been in vain. The mother says the baby never had an attack in the morning. Let it take five grains of sulphate of quinine during the day, say in two doses of two grains and a half each in a tablespoonful of black coffee. Or a little tannic acid might be mixed with the quinine to cover the taste, say half a grain or a third of a grain of tannic acid to each grain of the quinine which would make a fairly good powder to take. Or give the neutral tannate of quinine, two grains and a half of which correspond in strength with one grain of the sul-

phate. Repeating the dose in the manner already outlined, by the time of the twenty-fifth of the month is reached the baby will probably require no more quinine. Meanwhile, there being some gastric and duodenal catarrh, it would be well to give some bismuth and muriatic acid. And see that the child gets no indigestible food. Of bismuth, give eight to ten grains a day, or dilute muriatic acid from eight to ten drops in the twenty-four hours, each drop to be given with one-half ounce or an ounce of water.

Stomatitis.—The mother of this boy, who is five years old, noticed two weeks ago that his breath had become offensive. There was increased secretion from the mouth. He had some fever; the appetite was not good. Perhaps no odor of the breath is quite so characteristic as that connected with ulcerative stomatitis. The boy has been coming to this clinic nearly two weeks, and is much better. Ulcerative stomatitis is either on the cheeks, on the tonsils, soft palate, uvula, lips or gums. When on the gums it is called gingivitis, which really is different and more serious. In most forms of stomatitis we have to deal with inflamed follicles, which are swollen and lacerated and then burst. But the gums have no follicles, and when inflamed there is a rapid proliferation of cells without tissue formation, and therefore a sudden breaking down of the tissue. Sometimes deep ulcers develop in a day or two, and extend down even to the alveolar processes and a number of teeth may fall out. In very small babies the stomatitis is apt to occur first on the lower gums, extending as far as the incisors and canine teeth, in many cases stopping there. It is seen outside and inside of the six front teeth. It may, however, spread to the upper alveolar processes, and now and then it spreads to the cheek, destroying a good part of it. Most cases of stomatitis are found in little babies. They are brought to you crying, unable to swallow, unable to take the breast, looking pinched and starved. The treatment is by chlorate of potassium, or chlorate of sodium.

In this case the inflammatory process is chiefly on the inside of the cheeks, where we see creamy looking pus mixed with degenerated cellular tissue. Absolute cleanliness and chlorate of potassium have been relied on chiefly in treatment. The boy should take about half a drachm or a little less of the chlorate of potassium in twenty-four hours. He should not take more because it would have a bad effect on the kidneys and the blood, decomposing the

hæmoglobin of the latter, causing it to be altered into microscopic scales thereby obstructing the vessels. The poisonous effects of the chlorate of potassium first described by me many years ago, was attributed by me to nephritis, which is always found in such cases. But it was learned afterward that not only was there nephritis to account for death, but that there was a change of hæmoglobin into methæmoglobin, which has the effect alluded to on the capillary circulation, so that chlorate of potassium, as I pointed out several decades ago, is both a very beneficent medicine and a dangerous poison. Unfortunately it is still considered very mild and is used as a domestic remedy. I have myself seen a number of cases of death from its use, and since the publication of my first paper quite a number of fatal cases have been put on record.

If this child were to take half a drachm of the chlorate of potassium in twenty-four hours it would be well to dissolve it in five ounces of water and give a teaspoonful every half hour. Let him hold it in the mouth three or four minutes so as to secure the local effect and then swallow it. Taken in that way it will have a better effect both locally and constitutionally than if taken in larger doses at longer intervals. At all events, when you do give chlorate of potash a long time you should examine the urine before you begin its use, and every three or four days afterward. An adult could take a drachm and a half in the same way, diluted in water, glycerin or other medicines, as tincture of chloride of iron, etc. The more frequently you give the drug the better, limiting the amount at a certain dose for the twenty-four hours. We are told that this child has also been taking permanganate of potassium, which is well enough, only it probably would do as well with the chlorate of potash alone.

Delivered January 11, 1893. (*Stenographic Report.*)

Mitral Insufficiency. Premature Solidification of Cranial Bones. Hypospadias. Spondylitis. Psoriasis.

Mitral Insufficiency.—This girl who was presented recently on account of mitral insufficiency accompanied by ascites, enlargement of the liver, and some signs of cyanosis, has returned to show the results of treatment. We had made up our minds that in order to reduce the size of the liver we should do nothing but attend to the heart, consequently the child was put to bed, given proper nour-

ishment, and about two drops of the tincture of strophanthus every two hours. On examination we find that the line of liver dulness is considerably higher than it was last week. In percussing to map out the area of dulness you should not commit the mistake as one of you has just done, of striking the finger too hard, for it obscures the local dulness by eliciting more distant intestinal tympanitic resonance. Make your blows uniform and gentle.

Premature Solidification of Cranial Bones; *Hypospadias.*—This boy, five years of age, has been brought here by the mother, who gives a very indefinite history. As nearly as we can make out it would seem that the first tooth appeared when the boy was a year old, that he did not walk until when nearly three years old. Dr. Huber says he is not over-intelligent, and he certainly does not look so. He gives one the impression of having a very hard, solid head, a head which is small compared with the face. This is shown, for instance, in the comparative diameters of the forehead and jaw bones, making it evident that there is something wanting above. The head is hard to the feel, much harder and compact than heads usually are at his age. The teeth are yellowish, look and feel hard, and are in fairly good condition; no decay is apparent. You also notice, while looking into the mouth, its form. Tell me about the size of his tongue and the shape of the hard palate. The tongue seems a little thicker than usual. The hard palate appears to me a little flatter than normal; the raphe in the middle line is not so well expressed as in most children. Yet there is not much abnormality about it. These things have to be looked to in order to judge of the cause of the general retardation of physical and intellectual growth.

The boy has hypospadias. We have seen cases of hypospadias here before, and you know all about it, but there is this difference between this and other cases which we have presented, viz., here are two orifices. It is one of the milder forms. The urethra is formed to a certain extent. In the worst forms the orifice of the urethra is found in the perinæum, while in mild forms it is just back of the glans penis. When this boy passes his water it comes out of the two orifices, both of them near the end of the penis.

We find a good deal of depression on the head where the large fontanel had been.

It appears from the history of the case that it is one of rhachitis, affecting especially the cranial bones mentioned

before; rhachitis, moreover, in a small head. That is, it looks as if we had to deal with an originally small head which became rhachitical. Therefore, the child walked so late; therefore, the teeth came so late; therefore, there is a slight depression of the large fontanel. On the other hand, there is very hard bone now. What does that mean? You know that when the bone has been soft, and there have been large deposits of soft osteoid material beneath the periosteum, soft originally, that after awhile they fill up with an unusual amount of phosphates, and eburneate, as it has been called; the bones get more solid and stouter, and endure more than normal bone will do. This hard bone, then, may be considered the result of rhachitis which has healed. On the other hand, you must take into consideration that the boy may have been defective in intellect from the very beginning.

It is very probable to repeat, that we have here to deal with two things: first, an undeveloped brain; second, a rhachitical cranium now eburneated to such an extent that the undeveloped brain is now under compression. Further reason for believing this is shown in the flattened hard palate and thickened tongue, for idiocy, undeveloped brain, large tongue and flattened palate go together very frequently. This being a mild case, it is necessary to study it in all its bearings in order to arrive at a correct diagnosis and prognosis. The prognosis is rendered less favorable because it would seem the brain is compressed and the bones eburneated, and you cannot make these softer or thinner. All we could do for him medically would be to stimulate his nervous system a little, say by strychnia or by phosphorus, and rub him down with cold water, for his general health seems now to be good.

We are told that the boy passes his water constantly day and night. That might be due to the fact that, like a baby, he has not brains enough to control his bladder, Still, it is possible that his sphincters are not developed. but it is more probably due to a baby condition of the intellect. Babies are constantly wet, because, first, their sphincters are not developed; second, they have not enough intellect. As soon as the intellect grows they control their sphincters. It is possible that by giving this boy strychnia two or three times a day some benefit would be derived. What amount would you give him? "One-one hundred and twentieth of a grain .three times a day." It is probable he would bear a good deal more, for those with defective nervous systems will bear larger doses than

others. He might take 1-48 of a grain three times a day, although we might begin with a smaller dose. He might also take 1-100 of a grain of phosphorus three times a day, perhaps one drop of the oleum phosphoratum of the Pharmacopœia, or from twenty to twenty-five drops of the elixir of phosphorus of the National Formulary three times a day.

Epilepsy.—The history of this case has been taken as follows: A boy of thirteen years; no history of cyanosis at birth; easy delivery; parents healthy. At the age of one year he had measles. He then began to have spasms every other day; now has them once or twice a week. The attacks usually last about twenty minutes, and take place in the morning while he is in bed. Formerly they occurred at almost any time. He first makes a smacking noise with the mouth, then moves one or the other of his hands, then both legs, and the eyes turn to the left. The only anomaly found has been a deviation to the left of the nasal septum, occluding the left nasal chamber.

The mother says he could walk when eight months old. That the attack of measles at a year old was not severe, and was not followed by pneumonia; was not attended by convulsions. The spasm began to take place afterward.

You have heard the history. The boy began to walk when eight months old, the mother says, and that is what all your mothers said of you, yet none of us walked when eight months old.

The question is, what was the epilepsy due to? We have not been over this ground, I believe, and a few questions and answers will be in order. There was one remark in the history which struck me as suggestive, and that was that when the baby was born there was no asphyxia and nothing unusual. The reason why that was put in the history is as follows: Every disturbance of birth, particularly at the last stage, is apt to influence the future life of the baby. I have frequently spoken to you of the physiological peculiarities of the newly born. In them hæmorrhages readily take place. Hæmorrhages outside the cranium; hæmorrhages inside the cranium. A hæmorrhage inside the cranium may result in recovery; it may mean paralysis, inflammation, death or idiocy, epilepsy. The most favorable ending in most of these cases is death, for after that there is no life of idiocy, no epilepsy, no endless uselessness and dependence. There are particularly two reasons why newly born bleed so readily. First, A sudden change in the circulation; second, insufficient

development of the blood-vessel walls. Between the embryonal tissue at the third or fourth month of uterine life and the solid, hard tissue of the adult there are ever so many stages of transformation. The newly born has no solid tissues; it is similar in many parts to the embryonal tissue, particularly in the blood-vessels, and these burst readily.

It was stated in the history that there had been no asphyxia. Now, asphyxia means a condition in which the child is born without crying; in which the child is born with interruption of the fœtal circulation, and without an immediate substitution of the circulation as it exists in life. There may be an interruption of only a few seconds, perhaps half a minute, perhaps four or five minutes. In this interval a great many changes may take place. The blood may accumulate in weak spots and hæmorrhages may result. Blood, when delayed in small blood-vessels will become thrombosed; thus you may have thrombosis in the small veins of the brain, many of which are not supplied with muscular layers at all. There is a stopping of the circulation which results in stopping the nutrition of the part. Such a thrombosis may pass by and cause no very serious results, but through interruption of the forward circulation it may lead to meningitis behind the thrombus, or to hæmorrhage, and then the whole list of disturbances already mentioned. Therefore, you see, future obstetricians, of what importance it is that asphyxia in the newly born should not last half a second longer than is absolutely necessary. No matter what becomes of the woman, whether she loses a few ounces more or less of blood, no matter whether you have a bandge on a little sooner or a little later, or whether the bedclothing is in first-class order or not, your principal lookout ought to be for the baby. The woman will recover, but the baby may not recover for a lifetime if you do not see to it that the asphyxia is as short as possible.

Then we have the history of a normal development. The child probably had the teeth at the usual time and walked at the usual time, but there are other things which we should know where a condition exists that is to be referred to the brain. You must trace the history up to the time when the epilepsy broke out. What occurred when the baby was a year old to cause the epilepsy, for the same cause is likely to exist to-day? Nothing new having taken place, the same thing that gave the child epilepsy when a year old must be the cause to-day.

By closely questioning the mother we learn that the baby walked about the twelfth month, that it had not its first tooth until eighteen months old. The latter fact is certainly abnormal. In a child where there is premature ossification of the cranial bones for instance, the teeth will come early too, and almost always the upper incisors first. But in a rhachitical baby where the cranium closes late, after a year and a half, two years or three years, the teeth are apt to come very late, say after ten months, twelve months, eighteen months. Now and then you see rhachitical children in whom there is no uniform retardation, but simply an irregularity in the development of the bones. So it is possible now and then in rhachitis that the first tooth will come at the fourth or fifth month, that is too early; and this first one not be followed by others until some time, or they may come, as in this case, after the bones have been developed, or after the child has walked. So rhachitis will not only result in retardation of the teething process, but also in its irregularity. Now, rhachitis does not only mean disease of the bones, it affects everything that is connected with the bones and enclosed in them. And it is very probable something occurred at that early date which gave this child the peculiar condition of the brain which produces epilepsy. What can it be?

The head is rather small; the forehead is low; you get the impression that the large fontanel may have closed unusually early.

The mother says about a year. That would be three or four months too soon. Actual measurement of the head shows that it is not very small—it is about twenty-one inches in circumference. The probabilities are that the epilepsy, which must be caused by some change in in the cortex, owes its origin either to compression by early solidification of the cranium or to inflammation within the cranium during the first year of life or towards it. If it were the result of a tumor that tumor would have given some other symptoms and would probably have destroyed life ere this. The cause of the continued epilepsy must be something which does not interfere with the existence of the boy.

If we could make up our minds that the cause was premature solidification of the cranial bones, would the case be one suitable for craniectomy? This question suggests another; is there anything else which you could do? I answer the latter at once: No. As to craniectomy, that means an operation for grooving the bones of the skull,

very probably making one groove on each side from before backward, and giving the brain more space in which to develop. Theoretically, I believe there is no objection to that, and I think we might advise it after seeing the boy four to six times instead of only once. Meanwhile, I should propose to treat him symptomatically, giving bromides.

This is a class of cases which you will frequently be consulted about, and the responsibility is a very grave one. To advise surgery now, having seen the boy only once, would certainly be reckless, for we may be mistaken in our diagnosis. It may be the mother will bring us more facts when she thinks the matter over, consults her husband and other members of the family. We have been told that there is a deviation of the nasal septum with occlusion of one side. There is no doubt but what a number of cases of nervous disorder are the result of reflex action. The last eight or ten years the nasal mucous membrane has been studied in many different directions to explain a number of different formerly almost incurable diseases. For instance, hemicrania, severe neuralgia of the trigeminus, asthma, chorea, particularly chorea of the upper part of the trunk and face, finally epilepsy. All these have been explained in some cases by irritation of the nerves of the mucous membrane of the nose. Whenever the mucous membrane is in a healthy condition there is no such irritation; whenever there is a catarrh, or a polypus, there may be reflex action setting up one of the conditions named. And thus it has happened that cauterization of the nasal mucous membrane, particularly on the turbinated bones of the so-called erectile tissue, has sometimes resulted in recovery from hemicrania, asthma, in two or three cases from epilepsy, in a number of cases from partial chorea, where formerly recovery appeared to be impossible. But I would remind you of the fact that the cases of epilepsy which have appeared to date from such nasal reflexes have been very scarce. There have been only two or three, as far as I now remember, in which the connection has been somewhat like proven, where recovery took place which lasted. But even so small a number should encourage us to look into the matter.

You notice here that the septum deviates to one side. That gives rise not so much to dyspnœa as to catarrh. The mucus will accumulate behind the deviation, become rancid, the surface get ulcerated, general irritation of the nose arise, and with it secondary symptoms. But it is not very probable the baby was troubled in this direction when

one year old. We have not a history of a fall at that time, and we ask ourselves, if the nose was the cause of the epilepsy why did the baby not have epilepsy when half a year old. Supposing the nose to have been deformed then. Particularly as the nostrils of a baby six months are very narrow and easily obstructed, and the reflex irritability of the infant over a month being very marked, so I believe we can dismiss the condition of the nose as the cause of the epilepsy.

With regard to the administration of the bromides, the boy has the attacks in the night or early morning, therefore it is well for him to take the principal dose in the evening. Moreover, you will find it will produce less bromism to give the drug when the patient can sleep off the effect. If it were intended to give the boy sixty grains in the day he might take thirty grains at night, fifteen grains after breakfast and fifteen in the afternoon. If he should develop acne, the dose might be reduced. Or if he should begin to show more stupidity, or tendency to fall, or œdema, and so on, it would be time enough to stop. But we ought to begin with a good dose in order to see whether it will have any effect. The boy should have no coffee, no tea, no beer, and not enough vegetables to overload his stomach or produce abnormal fermentation.

Spondylitis; Psoriasis.—This boy is three years and a half old. As he sits we see an eruption on the fingers, more or less circular in form, the outside being a little more raised than the centre. We have been told that it has lasted several weeks, that there were never any vesicles which bursted and yielded liquid. Very probably other areas like the more prominent one on the thumb had shown some redness and a scaly condition in the beginning. This condition extends more or less over the wrist, and is also seen on the feet and legs, but in the latter situation there are less scabs. This is to be accounted for by the fact that the child can get at the hands to scratch and there it will take longer for the eruption to heal. It is an annular form of squama, not the usual form of psoriasis, but psoriasis complicated with more than the ordinary amount of dermatitis. While now limited to the extremities, it is probable there would soon be some spots on the back and head.

But there is something else the matter with the child. We have been told that he walks badly; that he appears to be weak. When a penny is placed on the floor for him to pick up he does not bend the back, but only the legs,

and in rising he puts the hands on the knees, still keeping the back rigid, and as soon as he may he takes hold of a chair for support. He dislikes to lie on the belly, and when placed on the table with the face down a space is left between the belly and table for the passage of your hand. That is because the vertebral column is sensitive and the muscles resist its being bent. In the normal child the vertebral column in this position bends forward, making a concavity in the lumbar region.

The spondylitis (or Pott's disease) in this case extends over at least three or four vertebræ. It is very probable the disease has been present some time. The mother says she has nine children, six now living, the others having died of croup and measles. This child used to walk, but has not walked for twelve days. He did not have a fall or any trauma as far as she knows. When placed on the back free flexion and extension can be made of the legs and thighs, pointing to the spinal column as the seat of the disease. As the condition was noticed quite suddenly, the probability is it began with a trauma. The child may have been hit, or may have fallen out of bed.

The treatment of the spondylitis would be absolute rest, the application of an ice-bag a few hours or an hour at a time five or six times a day for one week. After that week, certainly absolute rest in bed. The child must not sit up; he certainly must not walk about. He should lie, the head raised a little. In this way it is possible to wear the traumatic inflammation off. If the inflammation is tubercular, it will not improve it to the same extent. The child would probably be better off in a hospital for it will require to remain twelve months at absolute rest on the back in order not to be anything but a cripple.

With its psoriasis the child should receive little vegetable food. That would exclude carots, turnips, cabbages, salads, and so on. You might give a little potato, but not much; also some barley and oatmeal. But the principal thing in such cases of psoriasis is animal food. Then give arsenic internally. The child may begin with a drop of Fowler's solution three times a day, after meals, well diluted, and gradually the amount of the dose may be increased. In the rare cases in which Fowler's solution is not tolerated, Pearson's solution acts better, being the arsenite of sodium, while Fowler's is the arsenite of potassium. But Pearson's solution is so much weaker that you would have to give this baby about eighteen drops. Phosphorus will improve the solidification of the bone.

If the case would after all prove tubercular, guajacol may be given, one or two drops four times a day.

Local Treatment.—The child is black with dirt, apparently not having had a bath since its father was married. So it is about time it should have a bath regularly, or twice a week at all events. Plenty of soap will dissolve the scabs. They will fall off and probably will not form again. That probably will be sufficient treatment. Should we find the case an obstinate one we might apply some external remedy, such as chrysarobin in ointment, one part in twenty or thirty. But it has this disadvantage, particularly in a child, that it irritates the conjunctiva very much, sometimes even when not brought in contact with it. This child would certainly transfer the ointment from the sores to the eyes, and therefore at present I would advise only plenty of soap and water externally and arsenic internally, and wait for the result. We should have a report at the end of a week, at least, of how they succeed in keeping the child in bed. Then the ice might be discontinued, and we might apply over the back tincture of iodine, or mercurial plaster, or iodoform in collodion, say one part of iodoform in eight, ten or twelve parts of collodion painted twice a day over the vertebræ from the tenth dorsal down to the last lumbar. Over all a large bandage might be applied, passing around the body. The method of treatment will very probably have to be changed from time to time.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

BY A. JACOBI, M.D.,

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Delivered January 13, 1893. (*Stenographic Report.*)

Diphtheria. Scarlet Fever. Kolpitis. Diphtheritia and Bubo. Pulmonary Tuberculosis.

Diphtheria.—Girl of about nine years. History as elicited by a medical student: "The child has a little brother who was sick two weeks ago, but not very sick, being in bed two days with sore throat, pain on swallowing, some fever. This girl has felt sick since last night, when she began to have pain on swallowing, headache, vomited once, had a little dyspnœa, was feverish, and passed a very restless night. Now she feels about the same. The pulse is about 140; is not very strong; her hands feel hot. She says she does not feel chilly, but that she feels weak and dizzy, as if she would like to be in bed. Both tonsils are congested and protrude into the cavity of the mouth considerably during the movement of deglutition. On the left tonsil there are two or three small white patches, and behind the tonsil, near the posterior pillar, there is quite a large white patch."

Such is the history thus far brought out. I have just given her a drink of water to see whether it would wash away the white deposit to which you have just alluded, but it does not, which shows that it is not merely mucus deposited upon the tonsils. What is this grayish discoloration all over the tonsil, but most marked on the left? "It may be a beginning diphtheritic process!" Why beginning? The beginning of a diphtheritic process means when you cannot yet see membrane. When you see membrane distinctly, that is something more than a whitish appearance of the tip of the follicle alone there can be no doubt about its being diphtheritic. Besides, the history in this case tells us that a brother had diphtheria. It was a mild attack, it is true, but a mild

case will prove just as contagious as a severe one, and a mild case may give rise to a very severe one. But I have already tried to impress that fact upon you. Mild cases of diphtheria going about town are more dangerous to the community than severe ones which are confined in bed because of their contagiousness. As to the possibility that this case may after all not belong to the more contagious form, which is provided by or connected with, the Loeffler bacillus, but only to the so-called "pseudo diphtheritic" and which yields streptococci under the microscope, it must not make a difference in your preventive and curative measures.

What would you do for this child? "Put her in bed and keep her there for some time. She should have simple fluid diet and receive the tincture of the chloride of iron, say two minims every two hours, and some antiseptic solution with which to gargle and wash out the mouth frequently. I do not think she would need more medicinal treatment." I will correct that at once and give you the reasons. You have heard them before, but evidently have forgotten them. Iron is all right; it is a good disinfectant as well. But if you wish to get its local disinfectant effect you must give it often. And the child should receive more of it in the course of the day. This girl should receive at least a drachm, better a drachm and a half or two drachms in the twenty-four hours if you mean to make any impression. If you wished to give her two drops at a dose it should be repeated every ten minutes, and in that way you would get both the local and general effect of the drug. It would prove more efficacious than all the applications you could make by burning and swabbing out the throat. It would prove more efficacious, too, than gargling, for, as you say, in gargling the fluid does not get back farther than the anterior pillars. No gargle would reach the tonsil unless it were very large and pressed forward, in which case it would only touch the anterior part of the tonsil. It certainly would not touch the posterior half of it. When the gargle gets down to the latter spot the child swallows. One gentleman, high in the profession here, told me he could gargle and reach his posterior pharynx and bring the fluid out through his nose, and I asked him to please do it for me. I do not doubt his word at all, but on that particular occasion he did not succeed, but swallowed it. Now this child will certainly not do any better.

I would propose, then, that the child take two drops of the tincture of the chloride of iron every ten or fifteen minutes up to sixty or eighty drops a day. And if one wished to add a little chlorate of potash it should not exceed, during the twenty-four hours, twenty-five or thirty grains. You know that chlorate of potassium given in large doses acts as a poison.

Then, as you have pointed out, the glands at the angle of the jaw are enlarged on both sides. Those glands belong to the posterior nares, and I would therefore begin at once to inject the nostrils gently every hour or two hours with a solution of salt, half a teaspoonful to half a pint of water.

Would you give alcohol? "I see no indication for it." Alcohol is generally contra-indicated at the beginning of febrile diseases, except those which are very apt to lead to sepsis without warning, and if there is any such disease it is diphtheria. You ought not to treat any case of diphtheria without giving alcohol at once. That child ought to take two or three ounces of whiskey in the twenty-four at least, and if the pulse becomes more frequent and weaker to-morrow, double the dose. You cannot in the average case of diphtheria give too much alcohol. Now, that looks very dogmatic, but it is a dogma which I have learned by an experience with diphtheria of exactly thirty-five years, and the more I see of this disease the more firmly am I convinced that every case ought to be treated with alcohol from the beginning, although I am opposed to giving alcohol as a rule at the beginning of the common forms of inflammatory febrile diseases.

It might be well to put the other children in the family on the same treatment except the alcohol, for one child has already had the disease, which means that all have been exposed. Then that child might have another attack, for while in a large number of infectious diseases one attack will give immunity, that is not true of diphtheria. On the contrary, one attack of diphtheria rather creates a predisposition to returns. Therefore I would be in favor of giving the rest of the family the same medicines with the exception stated, though less frequently.

Scarlet Fever.—We have here a baby about two years old which is red all over, the tongue quite red, its epithelium thrown off. The eruption over the body is said to have come out this morning. The temperature is 104°

F. The case is plainly one of scarlet fever, and as we have recently had a similar case I will not repeat what I then said. The redness of the tongue is principally at the margins. There the epithelium or fur is thrown off first, and after a day or two it disappears from the middle of the tongue,when the whole organ takes on the appearance of raw flesh with little elevations, such as you see on a strawberry; hence it is called the strawberry tongue. There is no membrane in the throat. Next in importance to the possibility of taking care of a case of scarlet fever it is the making of a correct prognosis, for when you have made a correct prognosis you have armed yourself for better combating the disease. You must expect that on the fourth or fifth day there will be some membrane in the throat, and as a rule it will not do much harm at this stage, the trophic stage being then nearly at an end. But if membrane appears on the throat the first day it means harm. Such cases always prove to be bad ones, no matter how favorable they look at first. Having repeated this point because of its importance, we will now pass to the next case.

Kolpitis.—Having been over the ground of glandular inflammation, I will not dwell upon that phase of this case, but simply state that this baby has swollen glands in the left inguinal region, There is about them considerable redness, so that you would conclude there is not only an adenitis, but also a peri-adenitis, an inflammation of subcutaneous tissue and of the skin. Beneath is a sensation of fluctuation as if pus were present—pus no longer locked up in the centre of a gland, but having broken through and extending into the surrounding tissue.

There is a glandular swelling, and wherever there is something there must be a cause for it. In cases of glandular swelling we look for the cause in the neighborhood. Here it may be some irritation of the sexual organs. That is, the little child will first have, say, a common innocent catarrhal leucorrhœa. Catarrh of the vagina may give rise to a swelling in the neighborhood. So also might a gonorrhœal vaginal inflammation give rise to the buboes. A chancre in the vagina, or on the penis if it were a boy, would give rise to the same thing. It is always an adenitis which has been lit up by some irritation in the neighborhood; some irritation in the course of the lymphatics which have their outlet through those glands. We are told that in this case there has

been a vaginal discharge for some time, and Dr. Huber says the swelling was present when the child was first seen ten days ago. Now there is suppuration. It appears, then, there is a pretty active process, which may be due to a chancre or a gonorrhœa, or a catarrhal kolpitis, or, if we would use a bad name, a vaginitis. Vaginitis is the compound of a good Latin word with a Greek ending, a combination which smells of bastardy and ought not to be used, just as tonsillitis ought not to be used, although tonsil, or Latin, tonsilla, is by itself good enough. Amygdalitis should be used instead of tonsillitis, and kolpitis instead of vaginitis.

There might have been in this case some foreign body in the vagina which set up local irritation and near-by adenitis. Sarcoma or carcinoma might give rise to the glandular swelling, and sarcoma is now and then seen in this neighborhood in babies, but I have never seen carcinoma of the vagina at this age. But what is far more common is diphtheria. Diphtheria of the vagina is not at all uncommon. True, it is not seen here so often as in the nose, but it is liable now and then to attack every mucous membrane and every strip of skin which has been denuded of its epithelium. So in the vagina, you find now and then strips of diphtheritic membrane, thin, grayish, thick white, yellowish, brownish, usually pretty extensive, simply because there is a large surface which may be in a catarrhal, sore, or ulcerated condition, and for that reason exposed to a bacteric invasion. In the present case there is a grayish discoloration of the vagina pretty high up and over quite an extensive area. It looks only like a film, but it is diphtheria. It can not be anything else. Like the diphtheritic membrane situated in any locality whatever, it is composed of fibrin, changed epithelium, some leucocytes, a few blood cells, and foreign material deposited in it; also bacilli, generally a large variety of microbes. Sometimes streptococci and staphylococci.

As to treatment, let us first dispose of the suppuration in the left inguinal region. Is it fair to let the baby suffer from the pain which will result from that abscess, and is it fair to expose the system to absorption of the septic matter contained in the abscess? Do not forget that the abscess is not only subcutaneous; it is in the glands, too. I believe it is safer to open it very soon and disinfect it thoroughly. You may be sure that if you open it and leave it alone, not treating it antiseptically, you

will have diphtheria of the wound. Besides, when you open the abscess you should not forget that originally it was an adenitis; that pus broke from the centre of the gland to subcutaneous tissue and simple incision is not enough; one or more of the glands will have to be enucleated. So you will require quite an operation. Then it will be treated antiseptically and have a chance to get well, but always with the proviso that the vagina be treated at the same time.

What can be done with the vagina for the removal of such a membrane? Certainly mechanical interference is not permissible, such as scraping, cauterizing, rubbing, etc. I would warn you again that whenever you wish to make a local application to a diphtheritic membrane you should never touch the neighborhood, for as soon as you scratch or injure the surrounding epithelium the membrane will extend. Therefore to make applications in the mouth of an unwilling child is criminal; it is worse than criminal; it is idiotic, for it is impossible to do any good to a diphtheritic mouth which you cannot touch without injuring it. Of twenty children nineteen will be unwilling to have the throat touched in any way, and at least all of those who are unwilling will get worse after the first application. Besides, the violence used to overcome this struggle will exhaust what little strength there is. That is why I have insisted so much on reaching the throat through the nose. An injection through the nose can easily be made, and will flow down and touch the throat just as well if you opened the mouth and forced your treatment from that direction. Never inject through the mouth; always inject through the nose.

The temperature which has just been taken in the rectum is 102° F., which is moderate, and probably is due more to the adenitis than to the vaginal affection. To return to the treatment of the vagina, you do not want to use nitrate of silver nor any of the caustics. At least I would not advise you to. You could use washes of corrosive sublimate, say 1-1500 or 1-2000, applying it, say, once in four or five hours to the parts within easy reach of the brush. That strength of solution would probably do injury to the surface if it were used at the child's home, away from the direct supervision of the doctor. If a solution of 1-10,000 were employed it would have to be used oftener and more freely. It would be much better, however, to apply an ointment

and still better a powder. If iodoform powder were blown into the vagina, say, twice a day, I think it would be all that is necessary. The baby might have a bath before hand, simply for the cleansing effect.

The same care must be taken with cases of vaginal diphtheria as of other cases of diphtheria. Towels, and so on, that come in contact with the baby, must be disinfected at once, and must not be used on other babies. The baby must sleep apart. Yet, after all, vaginal diphtheria is not so dangerous as diphtheria of the throat. Still, I have seen diphtheria of the genitals in infants give rise to diphtheria of the throat in other members of the family.

Pulmonary Tuberculosis.—This boy is fourteen years of age. It is stated that he has been coughing a year, has lost much flesh, no family history of tubercular trouble, appetite is poor, has some pain on swallowing, voice is becoming hoarse. The bowels are fairly regular. His condition has grown worse the past two weeks.

The patient, as you see, is extremely emaciated and pale. Cavernous respiration is heard anteriorly, and bronchial breathing posteriorly over the left lobe near the middle of the sternum. There is a cavity in that neighborhood. There is diminished respiratory murmur all over the left lung. Also some dulness. As a rule a cavity in the lung of a consumptive patient is situated in the upper lung, but in children, particularly small children, it is quite common to find the cavity in the lower lobe, and therefore in them it is quite as important to study the lower as the upper lobe. A sudden transition is noticed here on palpation from the cardiac dulness to the tympanitic dulness over the cavity near-by.

With that history there is no doubt of tubercular suppuration of the lung. Yet it may be said that a doubt is always possible when the previous history relating to possible pneumonia has been left out. There may have been a pneumonia, and what we have here may be the third stage of pneumonic hepatization and suppuration. In order to divide the question the sputum ought to be examined. If this were the third stage of a pneumonia we should perhaps find the pneumococcus in the sputum, but if tuberculosis the bacillus of tuberculosis would very probably be found. The mother, however, gives no history of the boy having had a sudden acute disease which lasted a week or two, and which was attended by the symptoms of pneumonia. There is no family history

of tuberculosis, but it is very easy to acquire the disease in a population where it is the cause of one-seventh of all the deaths. Tuberculosis may get into the lungs, the glands, or into the intestinal tract through what we eat. It is only necessary that the mucous membrane be sore or in an unhealthy condition for infection to take place by bacilli, which may be swallowed with food or drink. As long as the stomach and intestine are in good order they will digest the bacilli, but if there be a diarrhœa, a catarrh, a sore from any cause, the bacilli may stick to the injured surface and set up tubercular infection. It is not necessary to mention all the possible sources of infection.

Dr. Huber is taking the temperature for us in the patient's axilla. You noticed that he dried out the axilla with a cloth before placing the thermometer. That should always be done, although rubbing must be guarded against it, as it will cause an artificial elevation of the temperature. Now and then patients who know that fact prepare a surprise for the doctor. I once had a case in which there would be sudden elevations of the temperature, as registered by the thermometer, to above 110° F. Then there would be a sudden fall, and I was tempted to make a diagnosis of some change in the medulla oblongata, until finally I found that my good hysterical girl knew all about the effect of friction on the thermometer, and while she was not being watched she would succeed in causing such friction movements as would run the thermometer up above 110° in the rectum. For a number of days I had been at a loss to account for what ailed the woman, until finally I found out what ailed *me*. Since then I have been careful to avoid any such doubt. So, if you take the temperature in the axilla, be careful that you simply wipe it out, and do not rub it and cause an elevation of the temperature by the friction. Dr. Huber has found the temperature in this case to be 102° F. That means in the rectum 103° F. fully. The difference between the axilla and the rectum or vagina is one degree. The mouth ought to give the same temperature as the vagina and rectum, but it is not to be relied upon, for sometimes it will be taken correctly while at other times it will not. You cannot tell when the temperature has been taken correctly by the mouth. A stupid person does not know how to cover the thermometer with the tongue and the lips, and the same source of error will arise in cases of dyspnœa, because

the patients open the mouth for more air. In pneumonia, pleurisy, sore throat, swollen tonsils, conditions in which the patient is glad to get air through the nose and mouth at the same time, cold air will enter the mouth, causing the thermometer to register less than it should. Even the most competent and willing patients will sometimes allow some air to enter the mouth while holding the thermometer. So now and then take the temperature by the axilla, but in general rely upon the rectum. In older women you will find no difficulty in taking the temperature by the vagina, even in so-called good practice. In hospital practice children will turn the backs to me as soon as I enter the ward, and they mean no harm either. So they did in my family practice when I had it, without any difficulty. Be sure to give the thermometer a half turn while you are passing it through the sphincter. When you put the thermometer into the rectum the temperature which it registers is that of the rectum; when you put it into the mouth, the temperature need not be that of the mouth at all. I have frequently been told that the temperature was 101° or 102° F., when, in reality, it was 104° or 106° F., the rectal temperature correcting that taken by the mouth.

What shall we do for this boy, whose temperature early in the afternoon is 103° F., and which probably will soon be 104° F.? He ought to go to bed. There is an abscess in the left lung and also coarse râles over the right lung. The room in which his bed stands ought not to be very warm; he is already hot enough. He sweats and coughs a good deal at night. He should have some morphine for the cough, and something should be done for the night sweats. Say atropin for the sweats and morphine for the cough. And the atropin will do away with some of the symptoms, say nausea and vomiting, which the morphine sometimes produces. He might take every night a tenth to an eighth of a grain of morphine and the one hundredth of a grain of atropia. Or, if that alone were not sufficient to stop the night sweats, one might combine with the atropia or give separately a tenth or an eighth of a grain of agaric acid. You may write a prescription for two grains of morphine, a sixth of a grain of atropia, and two grains of agaric acid, which might be mixed with some indifferent extract, and made into sixteen pills. One of these pills would be a dose. Camphoric acid would be given for his night sweats in an evening dose of from two to five grains.

In his present condition I would give the boy some digitalis every day. He might take as much as fifteen or twenty minims of the tincture of digitalis, or, if he has a bad stomach, a minim of the fluid extract of digitalis three or four times a day. At the same time he should receive pure guaiacol, say two drops after each meal, increasing it to four or five drops three or four times a day. Time will show whether the abscess will be near enough to the chest wall, and pleural cohesions thick enough to justify an incision for the purpose of direct draining.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Pneumonia. Exstrophy of the Bladder. Traumatic Tumor of the Cheek. A Phase of Rhachitis. Microcephalus. Dental Ulceration.

Pneumonia.—The history states that this child, about eighteen months old, has had whooping-cough since the week before Christmas. During the past three weeks there has been some dyspnœa, elevation of the temperature, cough with expectoration of mucus.

We find a little dulness over the right upper lobe anteriorly and in the right axilla. I may repeat the fact, because of its importance, that in a large number of cases of lobular pneumonia in children you find dulness in the axillary line when it is not to be found anywhere else. Remember that you must percuss gently in order to avoid vibration from organs at a distance. There are râles over the entire chest. I believe I remind you of only that which you know when I say that pneumonia in children is different usually from the form seen in adults. The common form in adults is so-called croupous or fibrinous pneumonia, while in children it is usually the lobular or broncho-pneumonia. That means the pneumonia is the result of what originally was a simple bronchial catarrh. In most of the cases, say two-thirds of them, the process is this: Small bronchi are obstructed with viscid mucus; behind this obstacle the air-cells are collapsed, and the space which formerly was occupied by the air-cells must be filled by something else, namely, dilated blood-vessels. Thus you have congestion, and from that you have exudation. The effusion is localized, while the catarrh may exist over a hundred bronchi. The mucous obstacles may also exist in numerous places,

giving rise to many pneumonic centres or lobular pneumonia. This condition may exist and yet give very little dulness on percussion, and still less bronchial or tubular respiration. In a number of cases, however, when you do not find bronchial respiration, you still find bronchophony. Therefore, the crying of a baby is not at all an obstacle to making a diagnosis. On the contrary, while it is crying, you can better distinguish whether the cry is immediately under your ear or whether it is at some distance. When it is immediately under your ear, louder than normal, you conclude that some of the pulmonary tissue is condensed around the open bronchioles. Bronchophony can be heard often when bronchial respiration is not at all distinct. After studying a doubtful case for some time, you may find that the voice is increased on one side where perhaps but little dulness can be made out, the voice simply being increased on one side as compared with the other. That fact very often confirms the diagnosis. But we will not go into this subject to-day further than as it has a practical bearing on the present case.

We have here, then, a history of pertussis. Now, in cases of pertussis, just as in cases of measles, the occurrence of lobular pneumonia is common. There are two reasons. First, because there is a general catarrh. Second, violent attacks of coughing. While the baby is coughing a good deal of mucus, the contents of the bronchial tubes is unable to get out, although some is expectorated. That which is in the trachea or large bronchi comes out during the violent coughing, while that which is in the smaller bronchi, particularly at the apices, is retained. Whooping-cough lasting so long, plenty of opportunity is offered for the development of pneumonia, and when it develops it is not likely to be soon recovered from. As long as the whooping-cough continues new pneumonic spots may form, so that the baby has practically one pneumonia after another. There is one peculiarity which will strike you in most of such cases, namely, that when the pneumonia is very extensive the character of the cough will change. The spasmodic attacks will sometimes cease, and when you see the case you may not make the diagnosis of whooping-cough, because the cough has rather the characteristics of a pneumonic than of a pertussis cough. But as soon as the pneumonia gets better the spasmodic character of the cough is liable to return. It is not only interesting, it is important to know that fact.

I have before spoken of belladonna in the treatment of whooping-cough. I should certainly recommend it here in full doses several times a day. It will act as a cardiac stimulant, while also acting against the whooping-cough. What has formerly been said about indications for treatment based on sleepless nights and wasting, applies in the present case. In most cases it is not necessary at all to give an antipyretic to reduce the temperature, but it is necessary to give a cardiac tonic, no matter whether you select digitalis or strophanthus, or sparteine, or perhaps in some cases iodide of potassium. In some cases you will require, even in the acute stage of pneumonia, small doses of strychnia, camphor, or carbonate of ammonium. Do not forget what I have told you several times before, that we cannot always treat such cases according to the rules laid down in books. We must be guided by the individual case. The patient has to get well, not the disease. The patient has to live until he gets rid of the disease. Therefore, save his strength and do not wait until the symptoms of debility or heart failure have set in. While giving belladonna I would give some digitalis, and very probably some carbonate of ammonium with it. Keep the patient in an even temperature, 69° to 70° F., with a kettle of boiling water constantly on the stove to moisten the air. At night the temperature might be a few degrees lower than during the day. But the fire should not be allowed to go out. A great deal depends upon the temperature of the room and the humidity of the air.

Exstrophy of the Bladder.—This patient has been presented before as a case of exstrophy of the bladder. To-day there is some soreness of the integument, which has been bathed more or less with urine. What can we apply over the excoriated surface? "Lycopodium." Lycopodium has this drawback, that when it comes in contact with a liquid it rolls up in little lumps, and then you have a foreign body which is very disagreeable, and which is apt by pressure to give rise to more irritation and soreness. I should not advise it. "Lanoline." Lanoline is a fat. It will cover the surface, it is true, particularly when it contains some water. When it does not contain water it is a hard substance which rolls up. You might add some water to make it stick to the surface, but it probably would contribute nothing toward drying up the surface. "A mixture of subnitrate of bismuth and prepared chalk." Yes, but why a mixture?

Why not try one alone? I believe bismuth alone would do as much good as anything. Shall we try bismuth in powder or in ointment? "Powder." Powdered bismuth has the same drawback as the other powders, that unless it is changed frequently it lumps, and when you change it frequently you have to rub the surface, and may make it sore in that way. I believe the ointment would be better. Besides, the fat in the ointment will protect the surface so that the urine will run off more neatly. The bismuth should be made into an ointment with what? "Ointment of the oxide of zinc." That is, one part of the oxide of zinc in about eight parts of fat. When you prescribe it, let it be made fresh. Ointments kept long are often rancid. Vaseline would do quite well. One part of bismuth and ten of vaseline would do better than bismuth in the zinc ointment. Regarding the exstrophy, we will consult a surgeon as to the proper time for operating. I hardly think it is yet time.

Traumatic Tumor of the Cheek.—This baby, about a year old, has been brought here by the mother because of a circumscribed swelling of the cheek. You notice that the swelling is quite circumscribed, about an inch and a half in its diameter, only slightly elevated ; shows no fluctuation. There is no redness over it. The mother says it came on quite suddenly a week ago yesterday. It has since remained of about its original size. The swelling does not project within the cheek; it seems superficial, being only in the subcutaneous tissue. The diagnosis may seem difficult, for there has been no apparent cause, yet the case is a comparatively simple one. You have suggested angioma, but that could hardly be, as it came suddenly a week ago. Trauma was probably the cause, although the mother does not know when the baby hurt itself. There was no external wound. The baby might have run against a chair and produced a hæmatoma. Or a needle might have got into the subcutaneous tissue and given rise to inflammation unattended by suppuration. Or the needle might have wandered to this locality from a little distance, for needles may travel all over the body. Needles that have been swallowed have been found in any part of the body. The swelling in this case is not situated where it would be produced by obstruction in Steno's duct.

What should be the treatment? "Let it alone." Yes, if you could prevail upon the mother to do that, but very probably she will use ever so many ointments, rubbing

the surface forcibly, resulting, if there be a foreign body, in its dislodgement, or else if there be any tendency to suppuration, in an abscess. It is very difficult to get people to understand that a thing can get well without your doing something. If we did not meet so many cases of disease which do have a tendency to get well we should be very badly off. You smile, but it is so, and the older we grow the more modest we become in the appreciation of the part which our services accomplish toward effecting the cure. The main thing is to make your diagnosis first.

A Phase of Rhachitis.—This baby, we have been told, is four months old. When three weeks old it had a swelling of the left wrist, two days later a swelling of the left ankle, and a few days afterward the right ankle became swollen. The child was not markedly restless nor feeble during this period.

We notice no pain now when we move the joints of the hand and feet. Nor is there much difference in the size or feel of the joints on the two sides. If there is any difference I would say that the epiphysis of the right wrist is thicker. In the legs there is a little more curvature than normal, reminding me of rhachitis. Close inspection also shows some swelling on the inner side and in front of the left ankle, with sensation of some fluctuation. At the same time the joint does not seem to be painful at all, and the movements are free. The right ankle is hardly as large as the left. Feeling over the left tibia, there is somewhat of an elastic cushion. You do not feel the bone immediately beneath the skin; there is more soft tissue between your finger and the bone than usual. What is it? "Œdema in the connective tissue." Why in the connective tissue? If it were in the connective tissue would it not pit? Here is a swelling which does not pit; therefore, it cannot be in the skin or connective tissue. "It may be in the periosteum." Yes. A periostitis with that amount of effusion or thickening gives that peculiar cushion-like sensation. Besides, the baby manifests some pain on pressure in this locality. It is a subacute periostitis The swelling at the ankle may be of the same nature, and it probably is. It is not *in* the joints, for the movement of the bones on each other is free. That explains why it has remained stationary. Can you compare that condition to anything which you have seen before? Yes, you have seen something like it, but in a different part of the body. You will remem-

ber the specimen of cranio-tabes illustrating the large amount in some cases of rhachitical softening of the cranial bones, the bones in that instance becoming so soft as to get absorbed at some isolated places. You will also remember another instance, in which there was a large deposit under the periosteum of newly formed bone. Rickets shows itself in the bones, first as a peculiar softening and thickening. This is especially true of the long bones. At last the bones become hardened, eburneated. As long as the epiphyses and periosteum are so soft a great deal of exudation takes place, the periosteum becomes very thick, sometimes four to eight times as thick as it was originally. When cut through it is sometimes found half as thick as my finger. There is rhachitical change on the right side of the occiput in this instance, the side on which the baby lies most, there being pressure of the brain from within and of the pillow from without, causing local absorption, thinning and flattening of the bone. The case is interesting enough as showing one of the ways in which rhachitis may take hold of a child and give you at the same time an easy opportunity of making a more or less brilliant diagnosis.

Your treatment would be in general, antirhachitic. Goodfood, better air, the baby kept at rest. The mother's milk is not always the best. In a good many cases you will have to recommend a nurse, or give part artificial food and part mother's breast; sometimes artificial food only. Local treatment, none. Internal treatment, say four drops of the syrup of the iodide of iron three times a day; phosphorus, say the one-hundredth of a grain a day, and it may be in the form of the elixir of the National Pharmacopœia, ten minims three times a day.

Microcephalus.—You will notice that this baby, which is a year old, has a small head. It measures fifteen inches and a fourth in circumference. It is a girl baby, and the circumference of a girl baby's head at birth ordinarily is fourteen inches, that of a boy's fifteen inches. If, then, this baby's head was of normal size at birth there has been a growth of only an inch within a year, which is too little. The head, too, has not the rounded fulness which a baby's cranium should have; it is tapering upward, particularly in the temporal region; the forehead is both narrow and low. The fontanel has closed. There is a good deal of hair on a pretty solid head. Ordinarily a baby's head is soft at a year of age; the sutures are just closing and the fontanels are still open.

This child's head is certainly small, the cranium narrow, the brain small. What have we to deal with? Is it a case of premature ossification of the sutures and fontanels only, or is it a case of genuine microcephalus in which both brain and cranium were defective from the beginning? In a number of cases we have to deal with defective brain and cranium at the same time, the fontanels remaining open even beyond the normal time, say fifteen or twenty months, or even longer. It is often difficult to decide in such cases as this one whether there was simply premature ossification of the cranial bones or that and also, primarily, insufficient development of the brain. To decide that question is of some real importance, for if this were a case of genuine premature cranial ossification it might perhaps be benefitted by Lannelongue's operation of bilateral craniectomy. But if you had to deal with a case in which the skull and brain were insufficiently developed from the beginning such an operation would not be justified. Is there any way by which we can tell to which class of cases this one belongs? As to the degree or significance of idiocy, that would depend upon the time when the compression had taken place. If there was ossification and brain compression before birth and parturition was rendered difficult because of absence of compressibility, the child would be a hopeless idiot. If premature ossification had not taken place until eight or ten months after birth, the child at present would probably simply show itself to be somewhat defective mentally. If the ossification took place at the third or fourth month of life it probably would be a case of idiocy or epilepsy, or both. When you have a normal brain, which is compressed by a cranium which has ossified all over, you have a round head. But this baby has not a round head. At the temples and above it is very narrow. When you have premature ossification of the cranium it is not always one of all the sutures of the head at the same time, but usually also premature ossification of other bones of the body. And in such cases there is nearly always early appearance of the teeth, the upper teeth almost always coming first. That was not so here. In this baby the lower teeth came first, and there are now only two. We cannot, then, recommend craniectomy in this case.

On looking into the mouth, you see something white under the tongue which feels hard and looks like a groove. Why should that be there? Is it a congenital

malformation? The mother says she has noticed it about two months, and gives as an explanation that the child bit it. Is that correct? "I do not know." Yes, it is correct. There is nothing in the baby's mouth to break the uniformity of the surface except the two teeth below. While the baby is crying the tongue is constantly rubbing over those teeth, and ulcers have formed just where the teeth have been touched. That condition is apt to be present in babies who have the whooping-cough, where the friction of the tongue against the prominent solitary teeth is frequent and hard, called whooping-cough ulcers If you were to remove the two teeth the ulceration would disappear within a month. It will also disappear when more teeth come so that the whole tongue may be supported. The best treatment is wait until the other teeth come, as long as there are no complications.

Delivered Feb. 1, 1893. (Stenographic Report.)

Congenital Luxation of the Hip. Effusion of the Knee. Pulmonary Tuberculosis. Rheumatism; Cardiac Lesions.

Congenital Luxation of the Hip Joint.—This girl is nearly five years old. She weighed thirty-three pounds when nine months old, but did not walk until she was seventeen montns old, and then only when supported. At two years she walked alone, but with a waddling gait. The waddling gait is still very pronounced.

The child walks with the abdomen projecting, the back curved inwards, especially in the lumbar region, the legs abducted, the hips seem very broad. The case is one of congenital luxation of the head of the femur on each side upon the os ilium. Congenital luxation has a peculiar charm when you look upon it from an ætiological point of view. Indeed, it seems quite wonderful how few deformities there are at birth when one considers the numerous possibilities for their occurrence. In the embryo when the lower extremities are first thrown out they are bent or flexed upon the abdomen. This is why after birth the baby at first lies in bed with the thighs against the abdomen, and it is also the reason for there being normally a curve of the lower extremities. The flexion of the abdomen in the advanced fœtus, however, is only a change secondary to the original position. The original position is that the posterior part of the lower

extremities is turned up to the abdomen. And it is only gradually that a change from posterior flexion to anterior flexion takes place. Congenital dislocation at the hip is to be looked upon as an arrest in the original position.

What could an operation do? Imagine you have such a misplaced head of the femur and you wish to place it elsewhere. You would have to do one of two things: You would either have to dig a cavity into the bone and there fasten the femur, or you would have to establish ligamentous adhesion. What you could do Nature has done for you here. You can get a crackling feeling of the head of the femur on the os ilium, which means that very probably the rubbing of the head of the femur on the ilium has caused it to be grooved out a little and inflammatory adhesions have formed over the head. That would be all that you could do yourself if you would undertake an operation, and it has probably been done better than you could do it. I do not think, either, that a brace would do her any good. Nature will compensate best for the unusual position into which her body is thrown. That the head of the femur is outside the acetabulum is evident by the fact that it slides up and down somewhat on motion while she is suspended by the body. The fixation is firmer on the left than on the right side.

Before presenting the next case you can examine the girl formerly presented for mitral lesion with consecutive enlargement of the liver. Under treatment by rest in bed, digitalis, strophanthus and spartein successively, the area of hepatic dulness has been reduced in this short time at least an inch.

Effusion of the Knee.—The history elicited in this case by Dr. Huber reads: The mother says that for three weeks the child, which is nearly three years old, has shown some interference with the movements of the left lower extremity, and there is an enlargement of the left knee region. There is no history in the past of rheumatism. Family history negative. The mother has had three children, the oldest eight years old. She says that this child has no pain except in the knee when walking and on lying down only when the knee is touched.

The swelling seems to be below rather than above the knee, and is in two parts, the lower part being over the tibia. Is it probable that the swelling is the result of a general infectious fever, such as rheumatic fever? Or is it due to a local cause? "Local." Yes, it is probably

only local, and it is possible that we have to do with nothing else than the result of a trauma. The baby may have injured the knee, causing a periostitis of the upper part of the tibia, and perhaps of the lower part of the femur or a synovitis. Very probably it is not rheumatic, unless there be some leucorrhœa. Leucorrhœa in babies is not always a simple thing; it is not always a simple catarrh of the vagina resulting from exposure to cold or from scratching, or an irritating foreign body; in a good many cases it is a gonorrhœal leucorrhœa. Now, gonorrhœal catarrh of the vagina or of the urethra is very apt to give rise to a form of so-called rheumatism which is very often confined to one joint. When you find, particularly in the adult, but in the young also, an arthritis limited to one joint, say the ankle, the knee, or perhaps both, and it remains there quite a while, the probability is that you have to deal with a gonorrhœal affection. It might be so in this case. If there were a vaginal catarrh we should examine the discharge for gonococcus, but the mother says there has been no vaginal discharge.

Tuberculosis is often confined to a single part for months, particularly if it occur first in bone. Indeed, tuberculosis may be hidden in bone for years before it becomes general. Pott's disease, caries of the ankle joint, of the carpal and tarsal bones, is often, perhaps in a majority of cases, of tubercular origin. Tuberculosis of the peritonæum also often gives no signs except ascites for a long time. This peritoneal tuberculosis may even get well, just as tuberculosis of the bones sometimes does after a long time, without infecting the whole organism. It seems to me we have in this case to choose between an arthritis of traumatic origin or an arthritis due to tubercular infection. In order to establish or exclude the latter the examination should be carried further. We should look for swollen glands, for not infrequently tuberculosis of bone is the result of tubercular infection somewhere else. Some swelling of the inguinal glands is not so significant, but if you find no enlargement in the neck and none in the axilla, examine the mediastinal glands by percussion. Sometimes auscultation is of aid, as enlargement of the mediastinal glands may cause some coarseness in respiration, sometimes even bronchial respiration. But examination in this case, as we now learn, shows no enlargement of the mediastinal glands, and no evidence of tuberculosis of the lungs.

But as practical men we can say, no matter whether the cause be traumatic or tubercular, that knee should by all means be kept at rest. It should be in a splint, plaster-of-paris would be best, and the child should be kept from walking on the limb for some time. The diet should also be regulated; the child should have more animal food, and I think I should give it at all events some guaiacol, say one drop of pure guaiacol four times a day. Although the baby is apparently in good condition, it has more fat than muscle; the tissues are soft rather than solid. In such children epiphysitis is common, and if we can stimulate ossification of the bone it will be a good thing. For that purpose we might give phosphorus, say in this case one drop of the oleum phosphoratum of the Pharmacopœia three times a day, which would be one thirty-third of a grain a day.

Pulmonary Tuberculosis.—This boy, aged fourteen years, pale and emaciated has been sick since a year ago. As far as he knows he never had pneumonia; was not confined to bed last winter when his cough began. None of his brothers are sick. Percussion over the chest gives dulness over the entire left side, anteriorly and posteriorly; there is also some degree of dulness over the right side. The voice sound is increased all over the lungs. At one spot there is bronchial respiration. Where you have such extensive increased dulness you suspect pleurisy with effusion, or thickening of the pleura, but if that were the cause of the dulness the voice would be more distant from your ear and less distinct. But when the pleura is fairly normal and the pulmonary tissue is infiltrated, the voice is carried directly to the ear from the open bronchial tubes which are embedded in solidified lung tissue. And so it is here, particularly on the left side. The case is one of tubercular consolidation. The sputum will yet be examined for tubercle bacilli.

Rheumatism; Cardiac Lesions.—This boy, about seven years of age, is said by his mother to have had two attacks of rheumatism, the first one when he was five years old, the last one some months ago, both attacks having been rather short. The mother is aware that he has heart disease, and has brought him here for treatment.

The case is an interesting one for you to practice in physical diagnosis. There is a double murmur heard nearly all over the chest. The question is, where does it originate? If it originates about the valves there must be a stenosis and also an insufficiency. I have just listened

over the carotid to see whether the murmur is transmitted there with all the force I expected, and I found that it is. That sound is both systolic and diastolic, and as it is so distinctly transmitted to the carotids, it must originate in an obstruction and insufficiency at the aortic orifice. Then there is a systolic murmur heard loudest over the mitral orifice anteriorly and also posteriorly. Very probably, then, the condition present in the case is aortic insufficiency and stenosis, and mitral insufficiency. If that be so the principal amount of hypertrophy ought to be in the left ventricle, and during the hasty examination which the lateness of the hour has permitted, that fact seems also to be established.

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Craniotabes and Seborrhœa. Nephritis with General Anasarca.

Before new cases are presented you should take the opportunity to examine two patients who have been here before and convince yourselves of any change or improvement that may have taken place. One is the case of angioma of the face, and you will observe that the tumor is still diminishing in size since the use of the cautery some time ago. The other is the case of the little girl with mitral disease and enlargement of the liver. Rest in bed and cardiac stimulants have still further improved her condition.

You will also recall the case presented recently in which swelling and softness was found over the tibia and the epiphyses of several joints, which we attributed to rhachitis, and for which we prescribed animal food, iron and phosphorus. Under that treatment the baby has already shown much improvement, the swelling having partly disappeared, though not entirely, and the parts having lost their tenderness when touched. There is a limited softening over the occipital bone on one side, which is further evidence of the rhachitical nature of the case. It is very interesting to notice how promptly the baby has responded to treatment.

Craniotabes and Seborrhœa.—Another case of rhachitis has just been brought in. As in the one just presented, there is softening of the cranial bones in the occipital region, but it is more general. From that fact which case would you infer has the more morbid

cranium? "The last." This time I am of a different opinion. You will remember the fine rhachitical specimen from the museum shown you a few weeks ago, in which the cranium showed softening and absorption of bone widely distributed, especially in the occipital region. In that case there had been a copious formation of loosely constructed osseous tissue, but afterward it was absorbed in isolated spots where only a thin membrane remained. In the case before us, however, there has been general lack of bone formation, so that the skull is in a condition approximating that which existed at birth. On asking the mother the possible cause, we learn that she nurses the baby only at night. She tried feeding it cow's milk, but it would not take it. She then gave it condensed milk and boiled oatmeal. Perhaps the cow's milk was poor, which would account for the baby not liking it. Condensed milk is certainly better than bad cow's milk but, as a rule, children will do better on cow's milk, in its normal state than when prepared by the condensing process. This baby has evidently had insufficient nourishment, which has led to lack of bone development. The absence of ossification is particularly noticeable along the lambdoidal suture. You will remember that the parietal bone ossifies from two points, both being near its centre, and when bony formation is slow the outlying parts, or those near the sutures, remain fibrous a long time after birth. So it has been here. The condition would probably be corrected by better food, good milk and some phosphorus.

The mother has brought the baby to the clinic because of the condition of the scalp. It is covered more or less with crusts composed partly of the secretions of the skin and partly of foreign material. The mother is afraid to remove it because she has been told that a baby's head must not be meddled with. Sebum is quite copious on the head of the newly born. There is a period in life when the sebaceous follicles are particularly active. They begin to develop with the epidermis about the fifth month of fœtal life. They then develop very rapidly about the forehead and scalp, and babies look as if they were smeared with fat, and in fact they are greasy. The outlets of the sebaceous glands are very large in them, and the forehead and scalp are covered with an oily substance, which if left on accumulates on the skin and becomes mixed with foreign material which comes in contact with it. This period lasts a year or a

year and a half in the baby, and the skin then becomes gradually less oily. Then another period arrives, namely, puberty, when the sebaceous follicles become very active and often become diseased more in the shape of comedones and acne. It is in individuals of both sexes who have either poor nutrition of the skin or who have suffered from deficient innervation that we find the sebaceous follicles secreting a great deal and excreting but little. That is, the secretion remains inside the follicles, causing the so-called comedones or black-heads. These are found particularly about the age of puberty in those who have shown little active contractility of the skin. You will not infrequently find them in masturbators. Boys and girls who masturbate and impair their general innervation will very frequently have the whole face, and also the neck between the shoulders, covered with these comedones which are nothing else but sebum retained in the sebaceous follicles—retained because the skin is not contractile enough to expel the masses. Not in every case, however, have you to conclude that you have to deal with a masturbator, but it always shows at least a certain amount of insufficient innervation or insufficient nutrition.

What must she do for the baby's head? She should oil it thoroughly and then wash it twice or three times a day with soap and water. Sweet oil might be used, or glycerine, or vaseline, or animal fat. After the head has been made clean, it will probably be sore underneath the scales, and a little zinc ointment might be applied with advantage, or zinc powder, or bismuth ointment, bismuth in vaseline, or bismuth alone. We have in some also used bismuth and starch, or bismuth starch and two or three per cent. of salicylic acid. A good preparation, which was brought to my attention not long ago, is stearate. One advantage of zinc stearate is that the powder used in that form sticks to the surface. It is a preparation which I would certainly recommend. It may be that our next pharmacopœia will accept some such preparation, which thus far goes by the name of, and is prepared by, a single manufacturing firm.

Herpes Labialis.—This boy, aged about four years, has, as you observe at once, a swelling under the jaw and sores about the mouth. The father says the sores about the mouth have been present seven or eight days, and the glandular swellings under the jaw on each side have been present three or four days. There

is no eruption anywhere, excepting that about the mouth, which extends somewhat down the chin. The scabs or serous exudates are almost transparent, and their appearance is very much like that of eczema, only that in herpes the vesicles are smaller, closer together, and the surface beneath is redder. There is some liquid beneath the scab or dried serum. There is no odor to the breath.

It is probable the boy had a fever from some cause or other; it may be he had only a catarrhal fever, and in consequence developed labial herpes. Very likely there were some herpetic spots in the mouth, but with or without that, the glands under the jaw became infected and swelled. It is generally a very active fever with healthy circulation which throws out herpetic vesicles, and when the old practitioners of the past century saw herpes come out during an acute inflammatory disease they made a good prognosis. And there was considerable reason for it. When, for instance, you meet with a case of pneumonia and the circulation is active, herpetic eruption is very apt to make its appearance. Herpes is decidedly a neurotic affection, and is generally recognized as such in "zoster." But these cases which are not so-called zoster proper, are of the same nature. Very probably this boy is over the disease now which caused the herpes; he had, presumably, a severe "cold," a catarrhal fever.

What would you do for the boy now, when the danger is simply from scratching and keeping the sores irritated and open, and thus also keeping up irritation and a swollen condition of the lymph bodies which finally might result in permanent hypertrophy or so-called "scrofulous glands?" "Apply some soothing ointment, like oxide of zinc, and keep the boy's hands off of it." Yes, keeping the hands off is more important than applying the ointment. To apply the ointment before the scabs have been renewed or disappeared would be of little value. Remove the scabs with warm water or oil; then apply the ointment and keep the hands off. Do we need to do anything for the glands? "I think the swelling will disappear spontaneously." Yes, after the herpes disappears.

Nephritis; General Anasarca.—The history which has been obtained in this case of a boy of about three years, is that five weeks ago the child first showed œdema of the eyelids. The abdomen also got large, the extremities

became œdematous. About six months ago the child had a slight eruption on the abdomen, but there is no history of an exanthematous fever nor of diphtheria. The mother has had eight children and all are living. The patient has been under treatment by various physicians. The urine is loaded with albumen.

So general a dropsy cannot come from a local cause unless that local cause is in the kidneys or in the heart. General dropsy should always direct your attention to kidney disease, heart disease, or a constitutional disease, as anæmia, hydræmia, or leucocythæmia. On the other hand, whenever you have a case of merely local dropsy, as ascites, you need not look for the trouble in the heart or kidneys. That is an important diagnostic point. In the present case Dr. Huber tell us that heart disease has been excluded. That fact and the presence of large amounts of albumen in the urine suggest the diagnosis of kidney disease. But the presence of albumen in the urine alone, no matter how large in quantity, should never lead you to make the diagnosis of renal disease. Not infrequently is it present in heart disease, and will disappear when the patient is put to bed and given a cardiac stimulant, such as digitalis. But in this instance the heart has been examined and nothing abnormal has been found. It should be remembered, however, that there are often cases of heart disease, even of valvular disease, without a murmur; and on the other hand, there may be cardiac murmurs and no valvular affection. It is true that when you find a murmur in children it means more than it does in adult life, for after the fifteenth year it is very common to find murmurs and no organic disease. But what I would impress upon you is that at every age there may be marked cardiac disease which we cannot find by physical signs. Sometimes we do not find murmurs; sometimes hypertrophy is not always well pronounced. Moreover, the diagnosis of hypertrophy is not always reliable, for now and then you may meet with a case in which there is a tumor in that neighborhood, such as glandular swellings in the mediastinum, and in adults there is now and then an accumulation of fat near the sternum and about the pericardium, which causes dulness on percussion. In cardiac disease we are apt to look to the valves and to the endocardium as the seat of the disease. In some cases that is a mistake. Particularly in advanced age, but sometimes also in children, we have to deal with

myocarditis rather than with endocarditis. In a large number of cases of death during or after infectious diseases, such as scarlet fever, diphtheria, or typhoid fever, the death is due to carditis or changes in the muscular substance of the heart itself. Such cases frequently do not give rise to a murmur, although they may change the heart sounds to a certain extent. And they frequently do not give rise to much hypertrophy, if to any, and still they may prove fatal. So in your future career I hope you will give heed to the fact that frequently in heart disease there is a myocarditis, a structural change in the muscle of the heart itself while there is no valvular disease to cause a murmur. The person may be anæmic, the heart not over-exerted, and therefore no hypertrophy exist.

But, as already stated, we are told that in this case the urine contains albumen and there is no heart disease. We will, therefore, take it for granted that we have to look to the kidneys for the cause of the anasarca, and that being true we must search for the original cause of the nephritis. Diffuse nephritis may be the result of sudden exposure to rain and cold, to falling into the water, but as a rule in children acute and subacute or chronic diffuse nephritis is the result of some infectious disease, in most cases of scarlet fever or diphtheria. Now and then it results from measles, thus the much boasted innocuousness of measles is a mistake. It also occurs frequently in pneumonia. The two diseases which are most frequently followed by nephritis do not always give a clear history. Scarlet fever sometimes occurs, especially in warm weather, when children are largely on the sidewalks, and the parents do not know of its existence. Diphtheria is also often an apparently mild disease, resulting in consecutive changes without having caused many symptoms in the throat or nose. In order to make the diagnosis more certain the urine ought also to be examined microscopically. It may be an acute case of nephritis, it may be an old one with acute symptoms grafted upon it. In the latter event we would probably find granular casts, kidney cells of different sizes in a state of granular degeneration. During an acute attack we often find many blood cells in the urine, in addition to leucocytes, hyaline casts and kidney epithelium.

On examining the abdomen we find it enlarged, the veins over it and the upper part of the thighs dilated, the abdomen showing fluctuation. The venous engorgement

is evidently due to the ascitic fluid pressing on the vessels in the parietes and rendering circulation more difficult. Assuming that the case is one of chronic nephritis with an acute condition grafted upon the older, it is quite likely bilateral. Unilateral nephritis hardly ever occurs unless dependent upon a local irritation, such as stone. Yet stone in the kidney is by no means rare in infancy. At one time I secured six specimens of stone in forty successive cases of autopsy in children. While that was an unusual experience, yet it shows that renal calculus is not infrequent in infancy. Only a fortnight ago a boy of eleven years was brought to me who had been known to pass blood with his urine six or eight different times during the last six years, sometimes a good deal. It was said that two weeks before he had had some hemorrhage, and he was packed up at once and brought to New York. The urine was quite clear in gross appearance, but I found it contained a little blood, a large amount of uric acid, and was constantly very heavy. On close questioning I learned that sometimes his urine would contain deposits which were absolutely red—uric acid—and this red sand would disappear after a time. I also found that he had slight pain over the right kidney on deep pressure. He recalled the fact, and his parents also remembered that a day or two previous to the hæmorrhages he would complain of slight pain about the penis, and he would have to urinate very often. All those facts pointed conclusively to the existence of a uric acid stone in the kidney. In adults, also, stone in the kidney is not uncommon, and I believe that it is the cause of most cases of pyelitis. If the pus comes from both kidneys the nephritis is more likely to be the result of a previous cystitis, or of a gonorrhœal nephritis, the inflammation having traveled upward.

It is very unlikely, however, that a pyelitis in one kidney would cause a general dropsy like this. As long as one kidney is in good order there will be no dropsy. We must assume, then, that both of the child's kidneys are affected, and the probable cause has been a scarlet fever or diphtheria which occurred without its having been recognized.

If it be chronic nephritis what shall we do? You have very probably a shrinkage of the kidney already, for so marked general dropsy would point either to a nephritis in the last stage or approaching the last stage. If you could restore the newly formed cellular tissue to the

normal condition in part or in whole, you might cure the dropsy and practically restore the health. The mercurial preparations used a long time might have some effect in that direction. While I am not very sanguine about curing a case of so-called chronic Bright's disease, yet I have seen cases to get better, and remain better a long time; indeed being practically well as long as they avoided injurious diet, medicines and conditions, and took iodides and mercurials. Mercurials used in large doses continuously may cause nephritis, but then every medicine may do harm when used in too large doses and too persistently. I remind you of what I said lately of phosphorus. This drug is a stimulant, a tissue builder, particularly of bone, when used a long time in small doses, but when given in large doses in quick succession it over-stimulates and causes necrosis; it causes acute phosphorus poisoning. You might give this baby 1-25 of a grain of corrosive sublimate three times a day and alternate it weekly, as I frequently do, with iodide of potassium, four or five grains three times a day, and in that way you will avoid causing stomatitis. It is a good deal easier to say what you ought not to do in such cases than what you should do. What you ought not to do is the giving of anything which will irritate the kidneys. There is one remedy which you must avoid for all future in cases of acute, subacute, or chronic nephritis, and that is digitalis. Digitalis will act on the kidneys in relieving anasarca only when it is due to disease of the heart. Particularly in valvular disease, with secondary kidney trouble, digitalis will act favorably. But where there is an irritable or inflamed condition of the kidneys digitalis will do harm, for it contains digitoxin, which is a kidney irritant.

The alkaline treatment is best, after all, in a case of this kind, as it has a derivative effect on the mucous membrane of the intestine; say, the citrate of potassium, or the bitartrate of potassium in sufficient quantity to have a mild effect on the intestinal secretions. The baby might take thirty, forty or fifty grains of the bitartrate of potassium in the twenty-four hours, with a good deal of water in order to wash out the casts, etc., in the kidneys. In those cases in which the pulse is small and frequent, nitroglycerin would do well. A dose for this child would be about 1-400 to 1-300 of a grain. It is hardly necessary at present, however, for the circulation seems to be pretty good. The baby ought not to be ex-

posed to damp weather. A warm bath once or twice a day would do good by causing gentle perspiration. Too much perspiration, however, might cause the circulation to suffer. It ought to be in bed most of the time. No stimulants; absolutely no alcohol. There are two structures which do not stand alcohol when in an inflamed or irritable condition, namely, the kidneys and the brain with its meninges. If a stimulant were necessary in a case like this alcohol should be the last to be thought of. You might give carbonate of ammonium or camphor. Say, four, five, ten or fifteen grains a day of camphor, either in the form of camphor water or shaken up in diluted mucilage, which covers its taste quite well.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

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Enlargement of the Liver. Hæmatoma of the Liver. Congenital Deformity of the Fingers.

Enlargement of the Liver.—You have heard me inquire of the mother of this child (about four years old) whether it has been fed on alcohol, and I made the inquiry for reasons which will soon appear. It so happens that we see here a number of cases of what appears to be liver disease, the striking feature being, as in this case, considerable increase in the size of the organ. In view of this fact it may be well to briefly review the conditions in which the liver is increased in size, in infants. The first point to be remembered is that the baby's liver is relatively larger than the adult's. In the young embryo the liver is about one-half the size of the whole body; in the adult it is about 1-36 the weight of the whole body. Now, changes occur normally with time, so that there are all grades of variation between these, we may say, extremes of proportion between the weight of the liver and of the whole body. In infancy the liver is still relatively large, but it is not so large as it appears to be, which is a fact of practical importance. It appears to be larger than it is because of the peculiar configuration of the ribs in small infants, their lower edges looking more outward than in the adult. After birth the size of the liver diminishes very rapidly in proportion to the size of the body, more particularly because the circulation from the umbilical vein is cut off until the vessel becomes but a thread of connective tissue. Sometimes, however, the umbilical vein does not shrink to such an extent, and some of its ramifications may remain open for life. This is of importance, not alone from an anatomical point of view,

but also practically. When the circulation of the portal vein is interfered with later in life, say from cancer or cirrhosis of the liver, in a number of cases you will find a peculiar net-work of large dilated veins around the umbilicus, the so-called "caput Medusæ;" it is due to the fact that the little branches of the umbilical vein which ought to have become occluded just after birth remained open. If they be closed, there is no "caput Medusæ."

The function of the liver is greatly changed immediately after birth. It is then expected to secrete bile, which it had not done, or in only a very small quantity, during intra-uterine life. During fœtal life the liver appears to be, if not also in later life, one of the organs that form blood. It also contains a good deal of sugar; indeed all the tissues of the embryo and early fœtus contain sugar. It appears that sugar takes the same place at this stage of development that blood does in the mature fœtus and after-life.

Having referred to what may be called a normal oversize of the liver, so to speak, what may be the causes of abnormal size in the child? Enlargement can take place by dilatation of both the blood-vessels and of the bile ducts. Thus it is that in every case of jaundice with retention of bile in the liver, this organ is apt to swell, simply because the innumerable bile ducts are dilated and swollen. Dilatation of the blood-vessels will also cause enlargement of the liver. This is seen when the venous circulation is interfered with by disease of the liver, of the pleura, lungs, or heart. You will recall the case of the little girl shown several times, who had an immense hypertrophy of the liver depending upon incompetency of the mitral valve and, I believe, stenosis of the mitral orifice. In that case undoubtedly there was at first only hyperæmia of the liver, but when the child came here the distention had lasted so long that it had led to hypertrophy. New connective tissue had formed, which accounted for its taking so long to resume its normal proportions. Pleurisy will have the same effect as a pneumonia and heart disease in causing the liver to swell, particularly when the pleurisy is on the right side. You can readily conceive that when pleurisy affects the lower portion of the right pleura, being mainly diaphragmatic pleurisy, thickening may take place, with the result of compressing the organs perforating the diaphragm and pleura. If the hepatic veins with the cava inferior be thus compressed, the blood will be dammed back in the liver.

this organ will swell, and ascites may develop in consequence. Although the cases are rather rare, yet I have seen a number in which diaphragmatic pleurisy of the right side resulted in an immense liver, and after a while in incurable hypertrophy of the liver, ascites, and finally dropsy of the lower extremities, with fatal termination.

The liver may swell in consequence of acute inflammations and of chronic inflammations. Acute inflammations are such as may terminate in suppuration and the formation of a liver abscess, or in parenchymatous inflammation, possibly developing into so-called yellow atrophy. Chronic inflammation may depend upon disease of the lungs and heart, or upon swelling of the interstitial tissue—so-called interstitial hepatitis (cirrhosis)—ending after a time in contracted liver and dropsy.

Cirrhosis of the liver as a result of chronic alcoholism is common enough in adults, but it is also seen sometimes in children. In the first volume of the Transactions of the Association of American Physicians, Dr. Howard, of Montreal (since dead), reports about sixty-three cases, and since that time a large number have been published.

Sometimes trauma results in an interstitial hepatitis and swelling of the organ, but probably not very often. In children especially, the hypertrophy of cirrhosis need not be uniform at all. We find it now and then in isolated deposits, big swellings perhaps of the right side and not of the left, and not in the form of nodules such as we see in cancer. In the majority of cases, however, the swelling is uniform and you can follow up the lower margin of the liver and distinguish it quite correctly. But in a number of cases you cannot do this, and it is particularly those exceptions which you ought to keep in mind, for simple cases everybody can diagnosticate. You can diagnosticate the difficult cases provided you know the facts.

Tumors of the liver from the presence of echinococcus, called hydatid cysts, occur in children not infrequently. In almost every case thus far reported the children had played a great deal with dogs. Thus there had been a legitimate way of getting the disease, for in all those cases the cysts contained the hooks of the echinococcus of the dog.

Other conditions causing enlargement of the liver are cancer, sarcoma, adenoma. Adenoma means a tumor which consists of hypertrophy or exuberant growth of the legitimate cells of the glandular tissue. Cancer is not very

frequent in small children; it has been seen oftener in the kidneys of newly born children than in the liver. As long ago as 1854 there is the report, by Noeggerath, of a case of carcinoma of the liver in a mature fœtus which had enlarged the organ to such an extent as to make parturition exceedingly difficult. Cancer of the liver has been observed a number of times in children somewhat older. Sarcoma is a pseudo-plasm consisting of cells, round or spindle-shaped, in varying proportion with connective tissue. The softness or hardness of sarcoma depends upon the relative proportion between the cells and connective tissue. All those conditions may be found in the liver, and when you see a case of hepatic enlargement in a child you must bear in mind that almost everything that is found in the adult may be possible. Leucocythæmia is not by any means rare in children. It has been found in very young babies. Perhaps I told you that lately I saw a baby of four weeks die of leucocythæmia. It should be remembered, however, in making a diagnosis of this disease, that in infants the number of blood cells is rather less than in adults. In a healthy adult we expect to find from five to six millions in the cubic millimeter, while in a healthy child we seldom find more than four millions and a half or five millions. As a rule the leucocytes too are rather less in infants than in adults. In the adult you expect to find for every five millions and a half of red blood cells, about twenty thousand leucocytes; in children only from seven to ten thousand.

Two of the most common forms of enlargement of the liver have not yet been mentioned to-day. One is fatty liver. There is always more fat in the liver of an infant at the breast than in other infants which are brought up by bottle and have more barley and animal food. Thus, a certain amount of fat in the liver in the infant is quite normal. The fat as a rule will not interfere with the hepatic functions unless it reaches that degree where the cells are destroyed. Hence, many cases of fatty liver get entirely well, the fat becoming absorbed while the cells are left normal. Thus it is, too, that you may have to deal with quite a large fatty liver in which there is no jaundice and no ascites simply because the cells are normal, they do their work and pressure does not obstruct the gall ducts or interlobular veins. But it is different in fatty degeneration of the liver depending on disease; thus far I have been speaking only of fatty liver in babies

who take a great deal of milk. Among constitutional diseases fatty liver occurs but seldom in syphilis, frequently in tuberculosis, and very frequently in rhachitis. In the latter affection particularly, the organ may increase considerably in size and finally interfere with its circulation and the secretion of bile. Another form is amyloid liver. The amyloid liver has this peculiarity, that it is very much larger, heavier, and more spherical than the fatty liver. The latter is softer, its borders give way more easily, and are not quite so spherical, not quite so full and bulky. Then the amyloid liver is complicated in almost every case by amyloid spleen and kidneys. When you find in a doubtful case that the renal secretion is normal and you cannot palpate the spleen under the ribs, you can pretty safely exclude amyloid degeneration of the liver. This form of liver enlargement is seen after infectious diseases, sometimes after typhoid or scarlet fever, or bad cases of measles, but it is more frequently connected with caries of the bones and pyæmia. In the present case amyloid degeneration can be excluded, the urine being normal, and other signs of the hepatic enlargement from amyloid degeneration being absent.

Syphilis may cause enlargement of the liver by causing a connective tissue hepatitis or by syphilomatous tumors. Syphilitic tumors may be very small, or they may even reach the size of one's fist. According to their size and locality they may cause jaundice or dropsy.

Would you expect to find the lower border of the liver in the infant enlarged more regularly than in the adult? The fœtal liver, you should remember, is nodulated, as is also the spleen, and remains so to such an extent sometimes in the infant that there seem to be two spleens, or two livers, or more. So that in feeling the border of the enlarged liver of an infant you must not conclude that its lobulated condition is necessarily of diagnostic significance.

In the present case it it has been found on examination that the child has a normal amount of blood cells; the spleen, as far as we can make out, is normal; the heart is normal; the functions generally are pretty good. It is true that it has a poor appetite. It has been fed on wine lately, and that I hope will be stopped. I have seen a little boy recently, four years of age, who had a pretty large liver and I learned that he was fed on alcohol. I inquired whether there were any more children in the family, and was told that there was a baby of eleven

months, and it, too, had been receiving the same virtuous medicine, but, as the parents stated by way of apology, only a tablespoonful a day thus far. So there were prospects of two cirrhotic livers in the one family. I believe Dr. Prudden made an autopsy on the bodies of two children in the same family in whom he found alcoholic cirrhosis of the liver. And that may come to pass in the two cases to which I have just referred.

Before excluding carcinoma we should mention the fact that it occurs in two forms in the liver of infants. It may be primary or secondary; usually it is secondary. It is either hard and nodulated, or there are carcinomatous infiltrations which, though they may be hard, do not give rise to lumps which can be felt on the surface. The usual form is that in which the enlargements will take place in every direction and the outlines will be very irregular. Now and then you will find cancerous infiltrations in a large, smooth, heavy liver which will give the same sensation as if you had to deal with an amyloid liver.

There being no elevation of temperature, we have to exclude abscess or other forms of acute inflammation. There is no history of malaria. The spleen and kidneys seeming normal, we are able to exclude amyloid degeneration. There is no reason to suspect alcoholic cirrhosis of the organ, as the boy has received only a little wine and that but a few weeks. Besides, if it were cirrhosis, that amount of enlargement would very likely have caused some ascites ere this. There is not the peculiar fremitus which should be obtained if there were a cyst, like a hydatid cyst, very near the surface. If it were carcinomatous infiltration it is very likely by this time the child would be cachectic. Sarcoma is also improbable, for there is neither the hardness felt in some nor the semi-fluctuation felt in other cases of sarcoma. It appears to me there is no other diagnosis than that of fatty liver, and as this condition is not at all uncommon as a result of chronic indigestion, rhachitis, tuberculosis, and various causes of malnutrition, I think we are safe in making that diagnosis.

In treatment we would have to inquire into the surroundings of the child, and give particular attention to its diet. The iodide of iron would be indicated. Wherever there is disordered nutrition, see to it that the heart does its work well. Imagine that you gave ever so much iodide of iron, it takes a stomach to digest it and the

stomach is under the influence of the circulation just as is everything else. Therefore I would recommend digitalis. You could safely give that child two minims of good fluid extract of digitalis two or three times a day, for some time, until you see a reason for diminishing the dose; of the syrup of the iodide of iron, give ten minims three times a day. The child should have animal food. There is a powerful external stimulant of the circulation. I refer to friction with either alcohol and tepid water, alcohol and cold water, or cold water. People will not apply friction alone; water is something they have known more or less about during their lifetime. So it is better to add to it some alcohol at first, using alcohol and warm water, then alcohol and cold water, then drop the alcohol altogether and use water.

Hæmatoma of the Liver.—This child (about five years old) was brought here two weeks ago with the history that she had been perfectly well until a short time ago. We found a prominence just over the liver, quite circumscribed, like what we see in cases of sanguineous tumors of the head, the so-called cephalhæmatoma of the newly born. The outlines were quite steep, the size of the tumor being about half that of the hand. There was a sensation of fluctuation which tempted me later to run an aspirating needle into it. There had been no fever, no history of a fall, all the functions seemed normal, the bowels moved, the appetite was fair. The swelling over the liver was but little painful. I inserted an aspirating needle and what do you think was obtained? "Fluid from a cyst." No. The tumor had developed quite suddenly, without temperature, without much pain. What could you expect? "Blood." Yes, blood and nothing else. Undoubtedly the hæmorrhage had been beneath the peritoneal covering of the liver, for it appeared to move a little with respiration which it certainly would not do if it were in the subcutaneous tissue. Since that time the child has been kept quiet and the tumor does not seem to be quite so circumscribed. It might have torn the peritoneal covering of the liver and extravasated along the intestine. But in that event the hæmorrhage would probably have been very copious, and the child would have become very anæmic, exsanguinated. I have seen that happen, particularly in the newly born. Now and then hæmorrhage from the liver is seen which results in speedy death, usually because simply there is no end

to the hæmorrhage. The blood of the newly born does not coagulate so easily, and therefore when in them hæmorrhage takes place, for instance, into the brain it is very copious, and may be seen on the surface or in the interior, and it may extend down into the spinal canal.

My impression is that in the present case there was a hæmorrhage under the peritoneal covering of the liver, that this caused a local peritonitis just as you have a periostitis when hæmorrhage takes place between the bone and periosteum; this peritonitis gradually extended downward to the point where we now feel a local hardness below where previously the tumor ended abruptly. The peritonitis, causing exudation and thickening, and also adhesions, left a still larger tumor.

But we notice something more in the case: there is an effusion into the abdominal cavity. Why should that be? There are two possible reasons. "Compression of the portal vein." That might be a cause, and I think it probably is the chief cause, and it will cease to act only when the pressure shall be removed. The other cause is the peritonitis itself. If we had to deal with a compression of the portal vein, the absence of enlarged veins around the umbilicus shows that in her case the umbilical vein with its small branches was quite obliterated immediately after birth.

I think we had better let the child alone. She should be kept very quiet. The bowels ought to be kept open—not by purgatives but by injections. Why not by purgatives? "In order not to excite peristalsis." Yes, for peristalsis might easily rupture the adhesions and newly formed blood-vessels and cause hæmorrhage into the free abdominal cavity and general peritonitis. A few doses of opium during the day would keep her quiet, while a larger dose should be administered at night. As to the absence of pain, we know that a good many cases of peritonitis are unattended with pain, just as some are unattended with fever.

During the few minutes which remain we will present this boy, eleven years of age, who has jaundice. The liver is somewhat enlarged and it is very likely there is a gastro-intestinal catarrh. It came on after exposure while he was out snowballing five days ago. The swelling of the liver is probably due to retention of bile in the bile ducts, and when an ample flow takes place again, probably within thirty-six hours, the live will again diminish in size.

Congenital Deformity of the Fingers.—This boy, seven years of age, has an interesting deformity of the right hand. The fourth finger is normal. The second and third are webbed together the length of the first phalynx. Between the first finger and thumb, including these two, there are three fingers, and it is difficult to say which one is supernumerary. That is an important question to decide before resorting to amputation of one. That connected with the thumb seems to be less closely in contact with the metacarpal bone than the other, and is webbed with the other. It would be better to amputate it than to try to enucleate it from the joint.

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Further Manifestations of Rachitis. Lipoma and Spina Bifida. Herpes of the Scalp. Favus of the Arm. Forceps Neuritis of the Neck.

Further Manifestations of Rachitis.—Do you notice anything unusual in the appearance of the baby before us (baby five months old)? "The head seems somewhat asymmetrical, the face very full and fat." And on exposing the legs they also appear large, but it is more fat than muscle. The epiphyses, especially of the wrist, are large. The asymmetry of the head is more apparent from a posterior view; anteriorly we notice one side of the face appears larger than the other. The mother brought the baby here because of a rash on the face, an eczema similar to what we have often seen before. All the rest is thrown in. The whole left side of the cranium posteriorly is soft, and can be indented almost as if it were a piece of paper. On the other side the bones are much firmer. Perhaps you have noticed that in carrying the baby the mother holds it erect. The result of that must be in so young a child that the muscles give way and the body bends to one side. You will find that healthy children, not alone rachitical ones, will develop lateral sclerosis very easily, the bend being toward the arm of the mother or nurse on which it is constantly carried. A baby which is fat and rachitical, having little muscular tissue, is very apt to develop a high degree of deformity from being carried on one arm only. A baby ought to be carried on the two hands, one under the nates, the other supporting the back and head.

Now, this baby has a protruding cheek on the same side on which the head behind is flattened. To me the easiest explanation of that seems the following: the baby had been kept lying on the left side, and its tissues being soft the head by pressure became flattened behind where the weight rested, while the cheek, which was not under pressure from below, enlarged from hypostatic pressure or gravity. I will give you a pathological comparison at once: Remember what takes place in the lungs of typhoid fever or persons who from anæmia or other cause have to remain on the back week after week and month after month. In those cases the blood will sink in the direction of the posterior part of the lungs. When they lie on the right side the hypostatic pneumonia will develop on the right side; when they lie on the left side the hypostatic pneumonia will develop in the left lung. Again, if a person have a spinal cord disease of a congestive or inflammatory character his condition will be worse by his always lying on his back.

I believe this is a soft, succulent, œdematous cheek, due to the baby lying week after week on that side which permitted the blood to get into that cheek more readily and prevented it from getting out so easily. Although I have spoken several times of rhachitis and cranio-tabes, I could not resist the temptation to show you this case. In the way of treatment, the mother's milk has evidently not proven sufficient. She might nurse the baby three times in the twenty-four hours, while the rest of the time cow's milk might be given, mixed with oatmeal or barley. The baby is probably constipated, for the external muscles being so poorly developed, the probability is that the intestinal muscles are also weak, so that cow's milk mixed with oatmeal water would probably be better than barley water. Both of those cereals are about equal in nutrient elements and starchy material, but oatmeal is best where there is a tendency to constipation while barley should be given where there is a tendency to diarrhœa. In addition this baby should have some animal food, say four or five ounces of beef tea or an ounce or two of beef juice once in twenty-four hours, and after a while a good deal more. What I would lay stress upon is the necessity at times of doing away with mother's milk. A nurse's milk may do better when the baby does not thrive on its mother's milk, but sometimes it will be necessary to discard both and give artificial food, or allow some mother's milk and some artificial food. Then

the baby might take a minim of the oleum phosphoratum three times a day. We frequently give an elixir of phosphorus according to the national formulary, twenty-five drops would be about equal to a drop of the oil. For the eczema on the face, an ointment of zinc or bismuth would, I think, do well.

Lipoma and Spina Bifida.—The baby before us is four months old and has a tumor in the sacral region which raises the question of diagnosis between, especially, spina bifida and lipoma. In this connection you will recall two or three cases of spina bifida shown here the past few months, and one in particular in which we injected a solution of iodine, iodide of potassium and glycerine, with the result that the tumor diminished markedly in size. The diagnosis was not difficult to make in that instance except for one who, because of the rarity of the disease, had not seen many cases. I have seen a few cases in which the spina bifida was covered by another tumor, particularly lipoma, and there a mistake in diagnosis may easily occur. An instance of that sort took place in this college about eighteen years ago. I presented a patient at the clinic who had a tumor of the sacral region and reminded the gentlemen that there might be a spina bifida beneath the lipoma and therefore an operation should not be undertaken. But one of the gentlemen either not hearing the remark or thinking he knew better, operated upon the tumor, removing the lipoma, it is true, but at the same time removing the spinal meninges, entering the spina bifida, the result being a draining of the cerebro-spinal liquor from the cord and brain and death within a day. Such an experience shows at once the importance of making a correct diagnosis. If this were a simple case of lipoma it would be a fair one for operation ; if it were one of lipoma with a spina bifida beneath, we might not touch the lipoma for a time at all, but inject the spina bifida as in the former one alluded to. After thus causing the spina bifida to shrink we might attack the lipoma afterwards. The tumor, as you will notice, is rather a diffuse mass on both sides of the spine in the sacral region, being rather higher and more circumscribed on the right than on the left. There is a somewhat angiomatous discoloration over its surface. The mass is soft and not quite regular in its outlines. A lipoma in the adult usually has the feel of a mass of veins or of intestines, nodular, whereas here the feeling is more

like that of a diffuse mass of fat. In a large number of cases of congenital lipoma the mass is diffuse in character, while in the adult it is more likely to be circumscribed and capsulated. Nowhere in this case is there a nodular feeling. When I make pressure upon it above with my finger it reminds me of the possibility of there being insufficient development of bone in the line of the spinal column. If that strengthen the suspicion of spina bifida we should next see whether there was any evidence in the lower extremities of deficient development of the spinal cord. You will remember that in one case presented here there was atrophy and paralysis in the lower extremities, both of which conditions are sometimes seen when the cord is the seat of spina bifida. In a number of cases the paralysis and the contractions are not complete, and therefore we have to judge by the more or less motility, sensitiveness, atrophy, or contraction in the legs. The mother tells us that the baby kicks very little, but uses the arms more. A normal baby of three or four months kicks a good deal. If this baby kicks but little it would lead us to suspect that there is insufficient innervation in the lower extremities. There is very little response when we tickle the soles of the feet. The same amount of irritation in a healthy baby would cause considerable outcry and kicking. So that there certainly is some sluggishness of the feet here.

What would you do in such a case? "Aspirate." You remind me of the gentlemen who, as soon as they come near a chest, thrust a needle right into it in order to save the trouble of making a diagnosis It might be that if you ran a needle into this tumor you would not strike the spina bifida if one existed, in which event the result would be negative. But it can be done, and the mother says it has been done. She believes a drop of liquid was obtained; that the doctor said not more than a drop. Now, to attach any value to that statement we would have to know who did the aspirating. There might have been a drop of liquid in the syringe before the needle was introduced. But I feel sure that you would find liquid if you aspirated; if not at the first trial, at least at the second. I have very little doubt that there is a spina bifida beneath the lipoma because, 1, there is a sensation of a bony gap beneath; 2, when a tumor selects that location it shows in itself that there is something abnormal in the original formation of the region; 3, the innervation of the lower extremities is

deficient; 4, this defect is quite local, the arms being active and well developed, showing that above the tumor and spinal cord has not suffered, especially in the ganglion cells of the anterior horns. The case will be seen again, but the treatment which I would recommend would be to inject the spina bifida with Morton's fluid, such as we used in the former case, and not meddle with the lipoma at present.

The child was circumcised a few weeks ago and still the prepuce does not pass back of the glans penis. Some cicatricial contraction took place, and also thickening, causing a large mass which feels like a tumor. When you perform circumcision in the future I hope you will get a better result than this. Had the prepuce not been operated upon it would never have caused this amount of difficulty. Very likely in a few weeks another operation will have to be done as there is complete attachment of the prepuce to the glans, and the urethral orifice is almost covered with cicatrical tissue.

Herpes of the Scalp.—Patient, a negress of about five years. This girl has a spot on the parietal region which one of you may describe. "It is a somewhat oval patch with loss of hair, skin much thickened, covered with dirty white scales; in the centre where the scales have been scratched off there is a serous exudate." There are several small, soft spots, not very close together, which appear somewhat like vesicles. Count up in your mind what forms of skin disease might cause such a vesicular eruption. "Eczema, psoriasis, ringworm." Would these patches answer better to herpes or eczema? Remember it has been three months since it first broke out Eczema would not be likely to remain so local that length of time. Herpes is always a local disease, following a nerve or forming a round patch about a nerve. I should be more inclined to call an eruption like this, lasting a long time, remaining localized, a herpes than an eczema. There is one thing which it might be mistaken for; an eruption which comes out in solitary spots, frequently on the head, which sometimes spreads all over the body, often lasts for years, is apt to return when it has been caused to disappear. "Psoriasis." Yes, this looks like a small spot of psoriasis, especially that near the ear, and I have some doubt whether the diagnosis of herpes circinnatus or of psoriasis is the correct one. The fact that it has remained in one spot so long does not

speak against either. Whichever it is, something should be done for the baby at once, without waiting for the full characters of either disease to make their appearance. If it is herpes, you should use something to remove the scales and at the same time destroy the microbes. What would do? "Sulphur ointment or carbolic acid ointment." Carbolic acid ointment would answer; or chrysarobin, and the latter would cover the indications if it were psoriasis. If there is anything that will remove psoriasis in a short time it is first soap and water, and water and soap again; and then chrysarobin. There is one objection to chrysarobin: it is apt to annoy the eyes, particularly if used near them. For that reason I think I would fight shy of that agent at first in this case. If it were employed it might be in four or five per cent. or less at the beginning, of the chrysarobin to the ointment, applied once or twice a day, and under such treatment the eruption would probably soon change its character and disappear. At the same time, if it were psoriasis, arsenic should be given internally, for without arsenic a case very seldom gets well. But I should propose to treat the case a week on the diagnosis of ringworm, giving nothing internally, but applying ointment of sulphur locally; meanwhile we shall make a microscopical diagnosis, and report.

Favus of the Arm.—Will you describe what you see on that baby's arm? "There is an area on the forearm where the skin is thickened, the surface red, and at one point a scab has formed." Have you seen any scab like it? "I think I have seen somewhat the same in psoriasis." No, for there it scales and scales. This is quite circumscribed. Have you not seen something of the kind on the head? "Favus." Yes, it certainly reminds one of favus on the head, and if that were its situation you would not hesitate a moment about the diagnosis. I have not the slightest doubt that it is favus, and I may say that it is a wonder there are not more cases, for it is a common disease among mice and cats, cats getting it from mice and babies from cats. There is no odor about it for there is no pus. We have to deal with an external infection, with a germ which must be destroyed. For that purpose I would recommend the application of fifty per cent solution of carbolic acid and glycerine. That will destroy the microbes and it will then heal in a short time.

Unilateral Forceps Neuritis of the Neck.—The mother has brought this baby, seven weeks of age, because of a weakness of the muscles of the neck, causing the head to drop to one side. She did not see the baby for about two weeks after birth, but presumably the condition existed at birth. The labor was difficult and instruments were used. There had been slight drooping of the opposite eye, but in view of the study of the case that may be left out of the diagnosis. The use of forceps sometimes causes a hæmatoma of the sterno-mastoid muscle which afterward is felt as a roundish hard tumor. None exists here. There is no contraction, but simply a weakness of the muscles of the neck on one side, allowing the head to droop in the opposite direction. There were no convulsions when the baby was born, and it is not likely the lesion was cerebral, but rather a neuritis, affecting the nerves supplying the muscles of the neck on that side. If it were cerebral there would also be likely to be some paralysis of the arm or leg. What would you do, and what is the prognosis in traumatic neuritis? "The prognosis is good." Yes, very fair. It takes some time for recovery. This patient has been gradually getting better.

As to treatment, one of you suggests leaving it alone at present, not to use massage or rubbing with oil, while another recommends the interrupted current. The current would stimulate the muscle and circulation, but the case being only seven weeks old there may yet be some hyperæmia, and I think it were safer to let the baby alone for a time, keeping watch of it, and perhaps in a fortnight electricity may be used. Meanwhile the head should be supported and some passive motion be made.

CLINICAL LECTURES ON PEDIATRICS.

(Session of 1892–93.)

BY A. JACOBI, M.D.,

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Cardiac Lesions with Complications; Fatty Liver, Torpid Circulation; Broncho-Pneumonia; Tetany; Habitual Constipation.

Cardiac Lesions with Complications.—You have seen this girl before. She is presented now that you may further study her condition and weigh the significance of some further symptoms. She is the patient who was found to have mitral incompetency and stenosis, hypertrophy of the right and left ventricles, and consecutive enlargement of the liver. You can easily convince yourselves by looking at the lips that she is somewhat cyanotic. On listening to the chest posteriorly you will find the mitral murmur exceedingly well marked. Her temperature by the axilla is 99.8° F. As to the cause of this slight rise of temperature, there are so many abnormal conditions in her organism that a rise of one degree might be explained in various ways. For instance, enlargement of the liver, resulting in distension of the peritoneal covering would easily account for it; it might even go on and constitute a marked hepatitis and perihepatitis.

In the scapular region behind on the left side there is a sound with inspiration somewhat like a whistle. It evidently originates in one of the larger bronchial tubes. To determine its exact origin you should listen elsewhere over the lungs and also over the trachea. If it arose in the trachea it should be transmitted not only to the one larger bronchial tube, but lower down as well. But it is quite local. It is not heard higher nor lower, but only over one large bronchus. What can it be? There must be some irregularity in the bronchus to give rise to so

unusual a noise or vibration. The irregularity must be due to something inside or outside the tube. It may be quite local, and consist of a piece of loosened membrane, or a foreign body, or an exudation giving rise to elevation of the surface. Or anything pressing from the outside of the bronchus might produce the same effect—for instance, a large mediastinal gland compressing the bronchus. But we have no reason to suppose she has swollen medastinal glands. None of the glands about the neck are swollen. It is probably only a temporary obstruction within the tube—a little thing making much noise.

She will continue the treatment by rest in bed and cardiac tonics, and if she lives she may after a few years develop sufficient hypertrophy of the heart to compensate for the mitral insufficiency and stenosis and be able to retain fair general condition.

Fatty Liver; Torpid Circulation.—You saw this boy (of about two years of age) perhaps three weeks ago when the diagnosis was made of fatty liver. Since then he had an attack of pneumonia from which he has just recovered. His liver is certainly smaller than it was. The treatment has consisted in keeping the bowels free. He has had small doses of calomel several times a day, and attempts have been made at improving the general condition, as the fatty degeneration of the liver was attributed to general ill nutrition. We shall continue feeding him as well as we can, and stimulate the cutaneous circulation. How shall the latter be done?—"Friction with alcohol." Which is the more important in friction with alcohol, the alcohol or the friction?—"The friction." Friction is the more important. Alcohol is not a very good liquid to rub with alone. Why?—"It evaporates rapidly." That would do no harm; we want it to evaporate rapidly. "It cools the surface." Yes, but we do not object to that as long as the heart acts well, as it would stimulate the circulation. "It dissolves fat." The main thing is that it withdraws the water from the surface, this it is that causes many people to com plain bitterly of the sensation. It dissolves fat, it is true, but it does not withdraw fat from the skin, as it does not go through the epidermis, but it takes all the water from the neighborhood and causes an unpleasant sensation. So that if alcohol be used it should be with four or five parts of water. If reaction follows cold water may be used, and if not it would be better to use hot water or tepid water, according to the case. Imagine what you

are doing when rubbing and bringing on an active circulation in the skin. A child of this age has between five and six square feet of surface; an adult of medium size has fourteen. There is an immense circulation of blood in that extent of skin, and by rubbing the surface you bring on a rapid circulation throughout the body. Therefore, it is so very important to keep the cutaneous circulation in good order.

Broncho-Pneumonia.—The following brief history has been taken of this child: It is two years old; was well up to yesterday morning; it was then taken with vomiting cough, and increased temperature.

As I came in I counted the pulse and respirations, finding the former to be 150, the latter 53. Is that the normal proportion? Or supposing the normal pulse were 150, what should the respirations be? 38. Yes, knowing the respirations to be in this case 55, that the baby is sick and has a temperature of 103 8°, you would suppose there was a pneumonia. Not infrequently can you diagnosticate pneumonia under these circumstances, other diseases being apparently excluded, although it may be two or three days before you find local physical signs of pneumonia. There are cases of pneumonia, particularly lobar pneumonia, or genuine fibrinous pneumonia, in which the process begins centrally and is detected only after two, three, sometimes four days, though meanwhile you are perfectly satisfied there must be pneumonia somewhere.

Placing the ear over the right side behind, we find bronchial, also coarse and harsh respiration. The percussion note over the same area is somewhat duller. Do not forget that it is neeessary to examine hundreds of children carefully before you can learn to recognize slight changes. The child's chest is small, and unless you are careful you will get the sounds from the near neighborhood of the affected parts which will obscure your diagnosis. It takes much more experience to learn to examine satisfactorily the chest of a child than that of an adult. But there is nothing easier than to make a diagnosis in the diseases of children after you have learned how. I say that with premeditation. Do not forget when you examine a child that forty-nine times out of fifty it has only one disease, and consequently you are not excusable for not making a diagnosis, provided you have some matured information and experience. Failure to make an exact or a single diagnosis in the adult is more ex-

cusable, for the adult is apt to have more than one disease. The older the patient the more diseased organs he is likely to have, and when you find pneumonia in an adult you very probably will also find remains of a previous pneumonia or of pleurisies. There is frequently atheromatous degeneration of the arteries in adult patients, mainly those somewhat advanced in life; there is also frequently kidney disease, and others. Therefore it is that when you make an autopsy on a baby you generally find but one organ diseased. When you make an autopsy on an adult you may find half a dozen organs. Therefore it is, too, that a complete diagnosis for a good diagnostican is more difficult on an adult than on a child. Therefore, that yon may make no errors in diagnosis on children, I have always admonished you, and do it again, to avail yourselves of all the opportunities you have here. These cases ought to be examined over and over and over again.

Will you give an outline of what you think you would do in this case of acute pneumonia? "Put the child to bed in a cold room, 65° to 70° F." I should not call that cold. But 65° is perhaps too low; 70° is a good temperature, for the baby will probably want to get up and the parents will have it out of bed once in a while, in which case a temperature of 65° would be a little too cool. Would you keep the air dry? "No, for I would not have more bronchitis set up." The air should be kept warm and moist. In our cities the air in houses is often too dry and plays havoc with mucous membranes It dries them out. A great many cases of throat disease are due to nothing else but the dryness of the air in houses. The aim of all furnace makers of modern times has been to add moisture to the air entering the house, but they have not succeeded very well. So this baby should be in a moist air, for after a while you will want a good deal of expectoration, and if you keep the mucous membranes dry there will be none. It is very likely the baby lives in a tenement house, as most patients coming here do, and as long as the stove is used for the purpose of boiling water it will be all right; but the trouble is that it is also used for boiling onions, cabbages, and all such things, which is not very commendable in a room where a child is sick with pneumonia. Everything on the stove which gives rise to disagreeable odor or contaminates the air should be avoided. Pure water, producing steam, is indicated.

What else would you advise? "Milk diet." If the baby is taking tea and coffee, what would you do about it? "It ought not to take tea and coffee." That is true; it should not begin taking tea or coffee now, but if it is accustomed to taking coffee already it gets its stimulating effect, and it would be better not to break off at once. Persons should not be allowed to take coffee until the age of puberty or about that time; that is early enough in our country. Besides some cardiac tonic is indicated, say digitalis, particularly in this case, for the baby is flabby, and very probably has suffered from insufficient or poor quality of food, or malnutrition from some cause before the commencement of the pneumonia. The temperature, 103.8° is not sufficiently high to be a special indication for treatment. But I hope that you will remember that a temperature of 103° may be high in some while a temperature of 105° may be less so in others. A temperature to-day of 104° or 105°, and perhaps giving rise to convulsions, may be no longer a high temperature in two days. For it is the onset of an inflammatory disease which injures the patient most and in which a sudden rise of temperature may not be tolerated. The onset of a pneumonia may produce a great deal of distress, whereas the same amount of congestion of the lungs and hepatization after a few days will be borne quite well. Therefore, it is necessary to do something the very first days, for instance, reduce the temperature if it gives rise to brain and other symptoms. There are some children who bear 105° very well; others do not bear 103° so well, so that you may have to give an antipyretic to a child having a temperature of 103° and not to another child with a temperature of 105°. That is, you are to treat, not the pneumonia, but the baby. The very best antipyretic will probably be a bath of 90° or 95°, which ought to last from five to fifteen minutes and may be repeated when the temperature rises again. The lack of strength in this patient would farbid the use of phenacetin or acetanilid, and of a cold bath. For the heart is feeble and may be injured by them.

Tetany.—The boy before us is of Italian parentage, three years of age. We do not have to wait for the mother to give the history in order to recognize that there is something wrong. Look at the hands and feet, particularly the hands. The hands and the fingers are bent in, the thumbs are flexed in the palm. Is that the result of spasm or of paralysis? "Paralysis of the exten-

sors." What do the rest of you think? "It is more like spasm." Yes, if there were paralysis the position would be more like that of wrist drop due to lead paralysis. The thumb would not be flexed as it is here.

The history of the case reads: when the child was seven months old it had a convulsion. When eight months old it had another; at fifteen months it had three convulsions during one month. The convulsions lasted about two hours, the spastic condition about two days. There have been convulsions at times since, always followed by a spastic condition of the muscles of the hands and feet, more especially of the hands.

We notice that the muscular contractions or spasms have been tonic, not clonic. The child is three years old, and appears to be poorly developed for that age. One is impressed with the fact that the general development has also suffered, either in consequence of the convulsions or because it produced them.

We have, then, a case in which convulsions began at the seventh month and have been repeated about a dozen times since, the child now being three years old. The convulsions were followed by these spastic contractions which passed off after a few days. The question arises: what is the condition of things when the child has these contractures? If you had this contracture as a permanent result of a single convulsion there would be nothing remarkable in it, for we very often see contractures, and still more frequently paralysis, in consequence of a single convulsion or of a single hemorrhage; paralysis is not infrequently the result of pressure and hemorrhage during forceps delivery, and frequently we see the same thing after a universal meningitis. But this is different altogether. In this case we have the same contractures, but they last only a day or two, in long intervals, Now in this case, have we a right to conclude that the convulsion is the result of something permanent in the brain? Something which does not produce sufficient local lesion to bring on a permanent irritation? And if so, what can that be? It looks to me as though we have to deal in this individual case with the result of an old meningitis, a pretty universal meningitis, probably. That meningitis may have been the cause of the first convulsion, but very probably it was the result not the cause, for we are told that up to the seventh month the baby was all right and then the convulsion developed after very few premonitory symptoms. It may be a little hemorrhage

was caused by the convulsion. The meningitis being left behind, we have a little organized exudate on the pia mater sufficient to give rise to irritation now and then when a special cause steps in, such as indigestion. On such occasions the child has a convulsion ; the meningeal irritation is increased, a contracture takes place, but the irritation not being sufficient to produce hemiplegia or paralysis. The extremities being chiefly affected, where does the principal lesion probably lie ? "Over the motor area." Yes.

Now we have gone into the genesis of the thing without giving it any name. I would rather the disease should be understood than that it should be named. We have to deal here with tetany. Tetany means a contracture, such as you see, well marked but transitory. It is particularly shown about the hands and feet, will come on at intervals, remain a few hours, a few days, sometimes for weeks or longer, disappears with apparently absolute recovery but only to return again.

Cases of tetany are somewhat rare. This is the only one we have seen at this clinic the past two years, and it is a very characteristic one. If you will look up the word tetany in your books you will probably find a number of synonyms, but the latter is now most used.

The etiology in this case seems to be pretty clear, but in many it is very obscure ; that is why it is so often taken to be of reflex origin only. Emotions, exposure, alcoholism, constipation, intestinal irritation in general, and tape-worm in particular, infectious and chronic constitutional diseases, such as rhachitis and malaria, have been charged with producing it. As I said I am more inclined to look upon all these as coordinate proximate causes, than as the competent and only sources from which tetany takes its origin. The central origin is particularly suggested by such cases as exhibit the same contortions in the muscles of the face, larynx and chest, and in the diaphragm.

The temperature which has just been taken in the rectum, is 101° F., which means that there is still some irritation going on ; that there is some active meningitis, and treatment will have to be directed accordingly. In most cases of tetany there is no elevation of the temperature whatsoever ; in many you have to deal with the result of reflex action only. In a few cases nothing at all has been found, in others the presence of intestinal worms was sufficient to give rise to the tetany. In a few instances

dentition has been accused as the cause, and, indeed, almost anything, from a smile on the part of the baby to a pneumonia or the last solar eclipse. Everything has at times been attributed to the physiological process of dentition. In a few cases the presence of scars, such as sometimes give rise to epilepsy, have been charged with causing tetany.

The pupils in this child are not more than normally contracted, there is not a very high degree of cerebral hyperæmia, yet as we have a history of convulsions and some elevation of the temperature there can be hardly a doubt about the presence of a local affection. Besides there is nothing else to explain the increase of temperature. The indications for treatment to-day would be the reduction of the temperature by reducing the morbid process. The child ought to be in bed, in a cool room, say 62° or 64° F.; it ought to have the head washed often with cold water. Persistent ice-water applications would probably irritate the child, there would be a hue and cry and the symptoms might be aggravated. The head should not be placed on a feather pillow, and there should not be too much light in the room. It is important where there is cerebral hyperæmia to keep the head high. Sometimes patients suffering from headache will tell you that they must lie with the head low or high, and you are able to judge thereby whether the headache is due to or connected with cerebral anæmia or congestion. So in this case, the head ought to be kept high and cool, the room cool and dark—at least for a day or two until this wave of congestion has passed over. If the bowels have not moved the child should receive a brisk dose of calomel, say three, four, or five grains, or a saline might be administered. It should be said that the heart seems to be normal, at least we are unable to hear a murmur.

Regarding the local condition, there would seem to be two indications: first, to absorb whatever exudate may be present; second, to diminish the local irritability and general vulnerability of the brain. Even if you could reduce the pia matter to its original normal condition, which you could not probably do, there would still be danger of an acquired vulnerability. Not infrequently the brain will adapt itself to abnormal manifestations, although it may have practically returned to an anatomical norm. Thus it is that now and then after the cause of epilepsy has been removed the epileptic attacks will continue. So in this case, it is probable we shall have to

do something to reduce the vulnerability, the excitability of the brain, even after treatment, for other indications, had a good result. I would say the child will require iodide of potassium a long time in doses of eight or ten grains a day. It will also require from twenty to twenty-five grains a day, and perhaps even more, of bromide of potassium a long time. I should not discontinue it on any account for a number of months if after a few weeks it appeared to be rendering good service. And probably it will. In order not to have the disagreeable effects of the drug give the principal dose at night when such effects can be slept off. If, for instance, you intend to give twenty-five grains a day you can safely administer twelve grains at bed time, the other thirteen grains in two doses, one a little while after breakfast, the other in the afternoon. Given in that way there probably will be no disagreeable effects at all and the brain symptoms will be likely not to reappear, If there should be another attack, the dose of the bromide might be doubled, at least for a few days, and the attack would probably wear off sooner than previous ones. I need hardly add here that everything should be avoided which might set up reflex or direct, irritation of the brain. The child is now fed on coffee tea, perhaps beer and wine, "just to make it strong." You will hear in your practice that wine must be given to strengthen the child. Avoid it. And avoid for all future cold feet and a warm or hot head.

Habitual Constipation.—Observe the cry of the boy who has just been brought in. It does not strike one as the cry of intelligence. Nor is the expression of the face one of intelligence. He is seven years of age and had been brought here on account of habitual constipation. Sometimes several weeks elapse without a normal movement. He wets his clothing during the daytime, but does not wet the bed at night. He began to speak only two months ago, and even now the speech is hesitating though he is seven years old. He is the third child. There are four other children in the family and all are apparently healthy. There was one still-birth, that of the last child. In this boy's case the labor was only of half an hour's duration. When about a year old he fell down a flight of about 16 steps. The mother says he does not go on the streets and does not play like other children. He had his first tooth when about six months old and the second one about the end of the year.

There is something wrong about that history; when the mother told me that the first tooth appeared the sixth month, and that the mouth was full of teeth the twelfth month, I thought it might be a case of premature ossification; but when she goes on to tell us that the other children are normal and had their first teeth the third, fourth and sixth month, and the remainder by the twelfth month, it would seem there must be something wrong with the dentition of the whole family or with her memory. I do not think that part of the history counts for much. The mother says the boy has no fits; all she has brought him here for, she says, is the fact of the constipation. If we can believe her story the boy has no movement from the bowels for weeks, then what passes is in the form of little hard lumps. The constipation has existed since birth. What can be the cause?—"Rachitis." Yes, but we do not see many signs of that now. The boy got over the rachitis long ago, but still has constipation—a week or more going by without a passage. "It might be want of food."—Yes, but he does not look starved, he is well developed. You see he is no longer rachitical, and the intestinal muscular layers ought to have developed by this time. If the digestive muscles were not well developed the probability is that he would have a big belly. Gas would bloat him; it would be neither absorbed nor expelled. "Perhaps the liver does not work well, it may not secrete bile." That might be the cause. "The sigmoid flexure might be too long." Yes, this is particularly probable, for the baby was not brought up on pap, but was given the breast, yet constipation has existed since birth. An over-due length of the sigmoid flexure which normally is longer in the baby than in the adult was first described by me some thirty years ago as an occasional cause of constipation, and may be the cause in the present case—alone or in conjunction with insufficient innervation. Imagine a person with no brain, he would not appreciate when the time arrived for emptying the rectum. A person who is unconscious will have accumulation of fæces in the intestine and urine in the bladder, and you cannot be too careful in the management of such cases. Now, this boy has propably been idiotic from the beginning. He had not brain enough to know when he should urinate nor when his bowels should be emptied. Or there may have been originally lack of innervation of the intestinal tract. It seems to me that his brain was poorly developed, his general nervous sys-

tem may have been poorly developed, the sympathetic system included, and so the lack of consciousness and the lack of innervation may have been one of the causes, if not the only cause of the constipation. Still it is not unlikely one of those cases in which the sigmoid flexure is unusually long and the downward movement of the fæces is impeded. Ordinarily, when the baby reaches the fifth or seventh year of age the sigmoid flexure assumes the relation to the rest of the colon which exists in the adult, and it is no longer necessary to give a daily injection in order to empty the bowels. We shall have opportunity to see the boy again.

Delivered March 29, 1893. *(Stenographic Report).*

Cephalo-hæmatoma; Chronic Diarrhœa; Muscular Spasms about Neck with Double Vision; Tetany.

Cephalo-hæmatoma.—This baby is fourteen months old, is flabby, has a large, square head, and the general expression of rachitis of which we have seen so many cases. But that is not the condition for which the baby has been brought here. It is a large swelling, feeling like bone in the right parietal region, and on the other side of the cranium another tumor, not so hard to the feel, and several smaller ones. The diagnosis in the case of the hard one is easily made. "An exostosis." At present it might be better to use a more general term and say it consists of bone or osseous tissue. What are the soft ones? "Possibly hæmatoma." "A serous effusion." "Possibly a fatty tumor." "Possibly a cold abscess." What speaks against it being a cold abscess? "It is painful." What speaks against its being a serous effusion? "It is circumscribed." The child had a fall a few days ago and these soft tumors formed, which no doubt are hæmatoma, and this tendency to the development of blood tumors on slight provocation would point to hæmatoma as the origin of the bony tumor on the right side of the head. I have told you that hemorrhages in the newly born and in the young child are, for a physiological reason, quite common. The blood vessels are but poorly developed; they burst very easily. The younger the infant the more nearly do its tissues approach the embryonal state, being tender and easily ruptured. The hemorrhages take place easily outside of the cranium as well as in the brain. All of you will find not infrequently sanguineous tumors when you enter upon prac-

tice, either consequent upon the use of forceps or occurring without artificial delivery. If, during your dissections, you look for the indentation on the baby's skull, which are for the reception of the blood vessels, you will find that they are very superficial, and you can easily imagine that the pressure of the forceps or of the bony canal through which the head has to pass might cause hemorrhage. You may notice a number of hemorrhages between the periosteum and bone in a single case. They will become apparent on the first or second day, will grow three to five days, will then remain stationary a week or two, then usually absorption will become apparent. Usually it takes a sanguineous tumor of moderate size from five to eight weeks or more to entirely disappear. At first there is absorption of the serum, then of the solid contents which have undergone granular degeneration. But while absorption is going on something else is going on, too.

Remember that the hemorrhage takes place between the bone and periosteum, and where the periosteum is lifted from the bone periostitis is set up, with deposit of new bone. Periostitis is not even necessary, for you know the periosteum is saved in surgical operations for the purpose of making new bone. When a hemorrhage raises the periosteum, new bone forms over the entire nude surface, but is most marked at the edges. In the present case although the hemorrhage took place only last Saturday, the newly deposited bone has already formed a sharp edge around the tumor. When the hemorrhage has been copious and the osseous deposit extends throughout the tumor, some months may expire before absoprtion takes place. Indeed it may never be complete, although a sa rule, cephalo-hæmatoma of the newly born disappears within a few months. The hard tumor in this case which occurred at the time of the child's birth has proven an exception to that rule. The fact that two or three new ones have formed recently shows a peculiar susceptibility upon the part of the child, and it is not unlikely that they will in turn prove more persistent than usual, but it is safer to let the case alone, for, if we should make a good deal of pressure upon the tumors or apply ointment extensively, we might light up a new hemorrhage inflammation and cause suppuration or further bony deposit. If you would use the needle now you would find some liquid blood, in a week or two the serum would have disappeared.

The treatment, then, of cephalo hæmatomata, no matter whether they appear immediately after birth or later from some traumatic cause, is to let them alone. Their tendency is to get well. Now, this is a rachitical baby, and if you would do anything it would be in the line of general anti-rachitic treatment.

Chronic Diarrhœa.—This little boy is about five years of age, has been brought here for diarrhœa extending over three years. He strikes us as a poor little fellow with a large, hard abdomen, one made hard by some solid tumor inside. The tumor may be single or multiple; it may be the result of peritonitic exudation with agglutination of the intestinal convolutions which frequently gives one the impression that one has to deal with a tumor; or it may be the result of a paralytic condition of the intestine with dilatation. We have had specimens of bellies like this in cases of rickets—where the children were not sick but simply weak in their muscles, so that the intestines were unable to expel the gases which formed within them. We have also seen this peculiar appearance frequently in children and adults who have undergone protracted peritonitis. The swelling of the belly in acute peritonitis is always the result of œdematous effusion into the tissues, particularly the muscular layers of the intestines.

That is also the reason for constipation in peritonitis. Peritonitis need not always show itself in very severe pain, or fever, or other striking symptoms. Not inf-re quently do we find chronic and subacute peritonitis in children and adults who give no other history than that of painless diarrhœa or previous intestinal catarrh. Whenever there is protracted intestinal catarrh the hyperæmia, the effusion will spread through the whole thickness of the gut, and not infrequently you will find at autopsy in such cases, death having been due to some other cause, the signs of an old peritonitis just outside the intestine. During life they had been called cases of belly-ache. Children that have belly-ache a good deal, without apparent cause, are apt to be suffering from chronic or subacute peritonitis. This is quite a common disease in childhood. I wish to impress that fact upon you. Many cases of peritonitis, seen in later life, are simply the after-development of a peritonitis which had occurred during infancy or childhood. Indeed you will find that cases of primary peritonitis are very rare. Even cases of primary peritiphilitis, so-called appendicitis, are exceedingly

rare. Whenever such cases come to autopsy you will find, twenty-nine times out of thirty, remnants of an older inflammation, which was one of the causes of the new one which resulted in death.

Now, children that have suffered from protracted diarrhœa will afterwards show at auptosy signs of chronic peritonitis. On the adventitia of such intestines you will find whitish, grayish, or yellowish discoloration. When you cut through the gut you will find that adventitia thickened, and now and then you will find it quite friable. Now and then you will find a sort of granular degeneration which is apt to burst, therefore it is that in typhoid fever, for instance, the peritonitis which occurs just opposite the ulcerations above the cæcum may give rise to perforations half a year, five years, or ten years after the typhoid fever had run its alleged favorable course. The perforation is simply the result of the granular changes which take place in the organized peritonitic exudation of the adventitia. I have seen that in a number of instances. A child, about three years old, had invagination of the bowel and died. At the auptosy I found that the portion of intestine into which the mass had been shoved was perforated. Indeed, I have seen that repeatedly, and in every such case the perforation had taken place in just such disorganized, degenerated peritonitic exudate. There was quite localized thickening of the whole adventitia, there was lack of elasticity, and from the bulk of the invaginated piece and pressure from within, it had become perforated. So it is that now and then persons will die suddenly from intestinal perforation when in apparent health. When we go back we find a history of typhoid fever or of protracted diarrhœa.

This child has had a diarrhœa for three years. We are told that three years ago it had frequent stools with a good deal of tenesmus. There were mucus and blood. The child has not been well since, but has had a number of movements daily. It soils itself and appears to have pain. All of us would probably say that with such a history of chronic dysentery there must be chronic ulceration in the intestine, and the ulcers are probably extending high up.

In order to cure him we would have to examine the rectum. We are told that has been done, and that a stricture was found; that stricture, we may say, is probably not a neoplasm. The child has just had a movement and the odor is very bad, being different from that

of normal stools. The surface of the mucous membrane in the rectum feels rough, and my finger encounters a stricture about an inch and a half above the sphincter, which will not let it pass. It is situated about where we look for the so-called third sphincter, the entrance to the sigmoid flexure. I think that by gradual pressure I could dilate the stricture and pass my finger beyond, where it is likely the gut is much distended. Any manipulation, however, would have to be very carefully made, lest one should perforate some deep ulcer. There is very little resistence on the part of the sphincter ani, which is the rule in chronic dysentery, unless there also be great pain and tenesmus. It is for that reason that the stools come away so easily, as they meet with no resistence. The stricture here is not a hard one ; there are corrugations over it.

The history of the case, then, is clear enough. It was one of dysentery which became chronic, resulted in a number of ulcers, the ulcers cicatrized, but I think a number of them are yet open. Cicatrization took place in the neighborhood of the third sphincter, or about two inches above the lower sphincter, and resulted in contraction. That has to be gradually overcome.

How can you cure such ulcers ? What would you do for them if they were external ? You would keep them clean and make applications as frequently as possible. You would wash them a number of times a day and apply astringents or antiseptics in some form. As far as possible the same thing should be done in chronic dysentery. The child ought to be put on one side, an irrigator bag be hung about a foot above it, not high enough to give the water too great force, else the intestine will be irritated and resist the flushing process. Use warm water, either pure or what would correspond to physiological salt solution; add a little gum arabic or boiled starch, and permit that to slowly flush the bowel and thoroughly cleanse it. A little bichloride might be added, say one to three or four thousand, or a teaspoonful or two teaspoonfuls of subnitrate of bismuth suspended in a pint or quart of water. While most of the bismuth would run out again, yet some would remain and exert a healing influence on the ulcers. By repeating the treatment frequently you would certainly cleanse and gradually heal the ulcers. Nitrate of silver has been recommended a good deal, but it ought not to be used in anything like a strong solution. If you were to inject into the

child's rectum say one grain of nitrate of silver to an ounce of distilled water, the result would be quite favorable so far as the ulcers are concerned, but the pain might be very severe in the anus, and, as a rule, I do not advise you, either in acute or chronic dysentery, to use nitrate of silver. The tenesmus is very apt to become worse, and it is impossible to be assured of neutralizing the nitrate of silver at once by a salt solution. If you could do that immediately you might use it. But it is not necessary. Indeed, you ought not to use any kind of strong solution. Alum or tannin, for instance, you ought not to use because of the disagreeable feeling which they cause. So I should recommend salt water, or gum arabic water, or bismuth suspended in water, now and then thymol in 2,000 parts of glutinous water, and should continue it a long time, or until recovery was eomplete. It is impossible to say how far upward the ulcers extend, but the dysentery having continued for three years it is very probable that the whole colon is involved. Now, it is not always possible to reach all of the large gut by such injections as you might make, even while raising the child by the hips, and therefore you should give such remedies as are expected to have a similar effect when administered by the mouth. But there are very few remedies which will get down to the colon when given by the mouth. Take, for instance, lead. It requires a considerable dose of this agent for any of it to reach the colon, and if given in such quantities it would be likely to irritate the kidneys. So with tannic acid, if it were given in sufficient doses to influence the dysenteric process it would be likely to irritate the stomach. Resorcin has been administered in these cases, but it is so easily dissolved that it is absorbed in the stomach and is useful only when there is an affection of that organ, not when it is situated farther down. Salol is not dissolved in the stomach ; it is soluble only in the small intestines under the influence of the alkaline pancreatic juice, and a part of it is swept down into the large intestine. So salol is certainly in order. Salicin might be used by adults, for it is insoluble and is swept down into the large intestine, but being bitter children will not take it. Bismuth is insoluble, it has no taste, it does not annoy the stomach; you can give it sometimes in large doses, say half a drachm to two drachms a day. It is swept down into the large intestine so that it might prove of some real benefit to the ulcers. As you would apply bismuth powder

to an external ulcer, so in these cases it might be applied to the sore intestinal tract. Bismuth ought to be used, particularly in cases where an astringent and disinfectant is indicated.

I should be in favor of giving the boy, first, his warm injections as stated; second, give twenty, thirty, or forty grains of bismuth a day with or without opium. Very probably with some opium to relieve the general intestinal irritation from which he is now suffering. At the same time, in a day or so we shall see to it that there is gentle dilatation of the intestinal tract (sphincter ani), for without it we cannot expect to run our irrigations up into the colon at all.

Muscular Spasms with Double Vision.—This baby is eight months old. You notice that it makes rotary and nodding movements of the head, with brief intervals of rest. The muscles which produce such spasmodic movements are supplied by certain small branches of the cervical plexus, which are deeply situated, while the sterno-cleido-mastoid is supplied by the spinal accessory. The movements cease when the baby tries to fix a watch held about a foot from the eyes, which would seem to show that the muscular spasms causing rotary and nodding movements of the head are reflex, being due to double vision and attempts to fix objects situated at a distance. But even if the vision trouble could be corrected, it is probable that the spasmodic movements would continue, at least for a time, from habit. Just as, for instance, epileptic convulsions are liable to continue after the original cause of the epiplepsy has been removed. Epilepsy which has resulted from fracture of the skull, or a cerebral tumor, or worms in the intestine, will reappear for a long time, perhaps forever, after the cause has apparently been removed, simply because the nervous system has become habituated to the abnormal action.

While in this case the rotary movement and the salaam may be the result of the impossibility of accommodating the eyes to distant objects, yet in a number of cases similar spasms are not due to any such external cause at all. In some instances they are due to brain disease, now and then a tumor, now and then hydrocephalus, now and then a local meningitis, and so on. Not infrequently do they depend upon a meningitis which has rachitis at its foundation. Attending the meningitis may be encephalic congestion or actual effusion.

Besides the spasmodic movements of the neck muscles, due to efforts at accommodation for distant objects, the child has slight nystagmus, especially of the right eye. There are also up and down movements of the eyes, but they are not so marked as the lateral movements. The eyes will be examined further and the baby will be presented again.

Tetany.—Our next case is a baby nine months old. You will remember that last week we presented a case of tetany, the only one which we had seen during the winter. Now we have two more. This baby has large epiphyses and moderate softness of the cranial bones. It is suffering from a peculiar spasm of the glottis, which we frequently see in rachitical babies. Laryngismus stridulus is a peculiar spasm of the glottis following a paralytic stage. The baby may be sitting quietly at play, when all at once the hands will drop, the baby will look pale, there will be complete apnœa—that means no respiration—then gradually the complexion will become purple; it may even be cyanotic. This will last ten, fifteen or twenty seconds, when a long crowing inspiration will take place and the baby will come to; or this second stage will not make its appearance, the paralytic condition alone being observed, and no crowing inspiration follows. Then sudden death ensues by the respiration being stopped.

The highly developed attacks of laryngismus stridulus are, with very few exceptions, central. Of fifty cases of laryngismus stridulus forty-nine depend upon hyperæmia of the meninges, always of a rachitical type. Babies with cranio-tabes, such as we have seen lately in the living and in specimens, are most apt to have such attacks of laryngismus. Therefore the treatment of laryngismus consists in treating the rachitis. Whenever you see a case your prognosis should be very guarded. You might say that the baby will not die in such an attaek if you will give me six weeks, or whatever time you think necessary, to carry out antirachitic treatment. With good diet, proper bathing, iron, cod-liver oil, and especially phosphorus, you might expect to relieve a laryngismus stridulus of that kind in four or six weeks, and then your prognosis would be a favorable one. The patient before us was brought in a few days ago, and has improved already.

The other case of tetany is in the colored baby now before you. It also is improving. What I wish you to notice is the peculiar forced position of the limb. That

may last a day or two and disappear, then return again the following week. It may come on after an attack of indigestion, or after the baby has been exposed before an overheated stove, or after an attack of constipation.

I may add here that laryngimus stridulus was at one time frequently attributed to the thymus gland, and was called thymic asthma. It was believed to be the result of hypertrophy of the thymus gland. The thymus gland, you will remember, is quite large in infants, beginning to diminish in size at about a year and a half of age until at the fifth year only a few shreds of connective tissue remain. Older writers thought they found the gland hypertrophied in laryngimus stridulus and gave that as the cause. But you will find on investigation that the size of the gland varies greatly in different babies at the same age, weighing in one instance perhaps fifteen or twenty grains, in another as much as a few drachms or half an ounce. Yet in some cases hypertrophy takes place to such an extent that the space between the manubrium sterni and vertebral column is greatly narrowed. The usual distance is only an inch or even less in infants, and if there be swelling of the glands in the neighborhood you can understand how easily the recurrent laryngeal nerve might become irritated or compressed, beside the conpression of the trachea and the neighboring organs. There are a few cases on record, and I have seen one myself, in which the sudden death during laryngismus stridulus could not be explained by anything else except hypertrophy of the thymys. But, as I said before, in forty-nine cases out of fifty the cause of the laryngismus is cranio-tabes and meningeal and encephalic hyperæmia and effusion. The size of the gland can not have much to do with the case, as a rule; for while weighing so little as fifteen or twenty grains, it is spread out over a considerable area. Some thirty-six years ago Friedlaender collected everything known about the thymus gland, and it is particularly to his credit that the connection between it and laryngismus stridulus was disproven, and that between the latter and cranio-tabes was established. Since then the thymus gland had been neglected, until eight years ago the Italian, Somma, wrote upon its relation to nervous disorders. A few years ago I studied the matter with the aid of Dr. Koplik, who made a number of prepations for me in the laboratory of this college. The article was published in the transactions of the Association of American Physicians. We found that there were a num-

ber of diseases of the thymus gland which had not been remarked upon much formerly. Syphilis may be found in it; I found tubercules in a number of instances; changes take place in it in diphtheria, and the gland is largely affected in leucocythæmia. In later years a persistent thymus has been found on several occasions, once by myself, when it was due, apparently, to intercellular proliferation and hyperplasia.

The muscular spasms in the baby affect the hands most, and as it is rachitical we may put that down as the cause. Treatment will be antirachitical.

Delivered April 5, 1893. (*Stenographic Report.*)

Pneumonia, Parotiditis, Hereditary Syphilis, Sarcoma of the Liver.

Pneumonia.—We have here a case of pneumonia in a baby about a year old. I wish you to put your ear on the chest behind and listen to the rhonchi, together with voice sounds. The pneumonia is bilateral, but is most marked on the right side. The dulness is very extensive. The diagnosis of pleurisy is impossible, because the voice, the moaning, is heard immediately under your ear. We should not keep the baby long, for cyanosis is beginning, the temperature is very high and the patient ought by all means to be in bed. The dulness is so marked that one might suppose it was a case of pleural effusion were the voice sounds not so distinct beneath the ear.

The baby should not be sent home after so long a journey without a heart stimulant. Indeed, it ought not to have been brought out at all. The salicylate of sodium and caffeine which I have here is soluble in two parts of water, and is very useful for subcutaneous injection in cases of sudden collapse, etc. By injecting ten drops of the solution the baby gets about four grains of the double salt, equal to about two grains of the caffeine oitrate. We shall administer the drug now, for once taking this baby out in the afternoon might kill it—not that the air is injurious, but the tumbling about, the squeezing in a shawl, compression by the arm, might lead to heart failure, and if the little one would die between here and home I should not be astonished.

As I said, the dulness on the right side is a very marked physical sign in this case, and reminds one of a large pleuritic effusion, but the voice sounds being so distinct immediately beneath the ear appears to exclude the di-

agnosis of that condition. Still, imagine a condition of things in which there are partial adhesions between the two pleuræ, and where parts of the lungs are close to the chest wall; there it would be possible, in spite of considerable pleuritic effusion, to have the voice very near your ear. Indeed, I have seen a considerable number of such cases. They occur less frequently in babies with their first pneumonia than in those from two to five years of age with a history of previous pleurisy. A portion of the two pleural surfaces may be adherent, a pleuro-pneumonia may develop, the pneumonia may be easily diagnosticated while the pleuritic effusion is not, simply because the lung is held tightly near your ear. But there are a number of diagnostic points which will at least make you suspect the presence of pleurisy. If the case lasts only six or eight days and resolves, you are confirmed in your diagnosis of uncomplicated pneumonia. If, however, there is a history extending over a number of weeks; if it is stated that the case appeared to get better after six or eight days, but did not quite recover and afterward got worse; if there is a history of returning fever, perhaps quite a low temperature in the morning and a high temperature in the evening; in perhaps older children a history of occasional chill followed by perspiration—all that would make you think of a complication, very probably some suppuration. In a large number of cases giving such a history, I have been quite confident that there must have been empyema complicating the pneumonia, no matter how positively the other symptoms seemed to point to a pneumonia only. One such case, perhaps a characteristic one, was the following: The child was five or six years of age; not much was known of the former history, but I found all the signs of a previous pleurisy and pneumonia. There was extensive dulness, bronchophony, bronchial respiration. But there had been a long disease; there had been fever, perspiration, and I felt sure that there must be pus present in the pleural cavity. I punctured and found pus, and an operation was performed next day. Before the incision was made we again punctured and again found pus, but on resecting the rib and cutting through the pleura no pus, but blood escaped. So that hole was plugged and another rib was selected, but the same experience was repeated. The rush of blood on each occasion was marked. A third place was incised, another portion of rib was removed, puncture was made and pus was found. The quantity was great. The explanation was that the lung

was adherent to the pleura in the first two localities explored. The needle had gone through the adherent lung tissue into the abscess, but when an incision was made with the knife we got only blood. The third time we entered directly into the abscess. That was the most striking case of its kind which I have encountered. Yet you should always be prepared to find a pneumonia which has run two or three weeks complicated by pleurisy or empyema, even though voice sounds be present directly under your ear in the region of dulness.

Parotiditis.—What do you observe in the patient before you (a boy about three years old)? "A swelling in front of the ear and under the jaw on the right side." Is it hard or soft? "It is rather soft." Is it adherent to the skin? "No; the skin can be lifted over it." The skin can be raised it is true, but less than on the otherside because there is swelling beneath. Is there a change of color; is the swelling diffuse? "There is no discoloration; the tumor seems rather diffuse, not circumscribed, but shading gradually into the surrounding tissues." It is both circumscribed and diffuse; anteriorly the swelling passes gradually into the adjacent structures, while posteriorly it ends abruptly. What causes the swelling to be diffuse anteriorly? "An œdematous condition of the subcutaneous tissue." Yes; where there is inflammation there is conjestion; a number of the blood-vessels, particularly the veins, are compressed, causing œdema in the neighboring parts. If the swelling were to disappear the œdema would also disappear within a few hours."

What is there here which could swell?" The parotid gland." What else? "Lymph glands." Which is it, the lymph glands or the parotid gland? "I would say it is the parotid gland." Yes; for if it were the lymph bodies the swelling would be more circumscribed. Enlargement of the lymph glands does not easily give so much collateral œdema in so short a time—the mother first noticed the condition a few days ago. Moreover, it would not swell to the extent that you see here.

Stand behind the boy and observe the appearance of the ears; the lobe of the right ear stands out more prominently than that of the left, because of the swelling of the right parotid gland. The prominence would be less marked if only the lymph bodies were involved

We have to deal, then, with parotiditis. Parotiditis may be caused by different things. It may be the result of trauma. Not infrequently do we find suppurative paro-

titditis in connection with general pyæmia. Still more frequently do we find it epidemic—so-called mumps. The latter is what we have here. Very likely the swelling will begin to subside within four or five days, and a week or ten days may be the end of it. Meanwhile the child will probably have some fever.

Will you tell us something about the general history—the etiology and the pathology of the disease? Is it to be found all the year round? "No; a few cases may be found but it is generally epidemic." Epidemic and sometimes endemic. You find it now and then in a number of localities or in one large locality, sometimes in a single block. It is undoubtedly infectious and contagious at the same time, and that is why the child should be removed from other children. It is one of those cases which ought not to be brought to a public institution.

What should be the treatment? "Paint it with the tincture of iodine seems to be the rule. At least every case which I have seen has been so treated. The disease runs its course in a few days anyway." As a rule, very few cases end in suppuration, and therefore it is best not to irritate it at all—not to add any fuel to the fire. Since the saturated tincture of iodine is very irritating, since it keeps the child awake, since it not infrequentiy raises blisters, I think it better to do altogether without it. Warm applications are the most agreeable to most cases. In cases, however, in which there is rapid swelling I would rather advise you to apply an ice bag in order to limit the amount of swelling and to reduce pain. When fever is high a dose or two of quinine will be useful. Keep the bowels open; keep the children in the house where the air is cool; give a non-irritating diet, such as milk and farinacious food.

Hereditary Syphilis.—The history of this child's case is that the mother has had six children, the oldest twelve years of age, the youngest, which is the patient before us, fifteen months. The mother noticed sores on her vulva when pregnant six months with this child. Then her hair began to come out. She does not know when she became infected, but it must have been at least some months before she lost her hair. Besides she had scaly desquamation of the palms of her hands and the soles of her feet, which also indicate an advanced stage of constitutional infection. There is no doubt as to the diagnosis in her case. Her other children were well. This child was born after she had these secondary symptoms.

The first thing which she noticed about the child was when it was six weeks old, consisting in a pinkish eruption over the body. There is still some nasal discharge and remains of the eruption upon the soles of the feet. The skin generally looks pretty well and the baby is well developed. What she brings the child here for is enlargement of the head. It is fifteen months old, the head is large, the hair scanty, the anterior fontanelle is large, although by this time it ought to be closed. The mother thinks the baby does not see, but it hears, for it smiles when she speaks to it.

Can you think of any condition of brain, nerve, or retina of syphilitic or dropsical origin which would give rise to blindness? "Optic neuritis." "Atrophy of the optic nerve or of a small segment of it." Yes, there might also be the compression of the optic nerve between the chiasm and the retina, the result of compression by a tumor, as syphiloma or gumma. There might be a gumma in the chiasm which would effect both nerves at the same time. If it is a tumor of any kind it is in all probability a gumma.

Can you conceive of any other cause? "Would not general compression cause it?" General compression of what and by what? "Increased intracranial pressure by fluids." Very possible, but we sometimes see much more marked hydrocephalus than this in patients who still can see. On the other hand, now and then we see cases where the hydrocephalus is less marked and vision is lost. No, I do not believe the loss of sight here is due to pressure upon the optic chiasm by intracranial pressure. Might there be any other cause? Do not forget you have to account for the blindness of two eyes. "There might be detachment of both retina by serous effusion." You mean by œdema of the choroid and retina. Can you imagine an œdema which would produce blindness so persistent as in this case? An œdema which has not something behind it as a cause would not persist so long. "The œdema might have occurred some time ago, caused detachment, and blindness remained as the result." Do you mean an infiltration with atrophy or an inflammatory process?

A neuro-retinitis is not at all uncommon in syphilis, but there is a more frequent cause of blindness than this. Just as you may have an œdematous infiltration in the cavities of the brain and meshes of the arachnoid, so you may have an œdema extending into the sheath of the

optic nerve. It is simply a continuation of the general cerebral process.

That is a very common thing. When you have to deal with more acute hydrocephalus it is likely to get well. When, however, the hydrocephalus lasts longer, yet finally recovers, the condition in the optic nerve does not improve and the blindness persists. I know of such a case now in a man whom I first saw twenty-eight years ago, when he had acute hydrocephalus, got well, recovered his cerebral functions fairly well, but is blind to this day. That is more likely the cause of blindness in this case than is a syphililic tumor located in the chiasm, for if a single tumor be the cause this must be its situation in order to affect both nerves.

Is there a possible connection between the syphilis and hydrocephalic effusion? "It is not only possible, it is more than probable." This being the only baby in the family with syphilis and the only one with cerebral dropsy, very likely there is connection between the two conditions.

You should ask yourself what are the changes caused by syphilis which take place in the brain. They are of two kinds: New formations, called gummata, which may be small but very numerous, and changes in the arteries. The intima protrudes into the lumen of the blood-vessels in consequence of a peculiar proliferation of a granular, newly formed tissue—that condition which has been known since Heubner's writings, twenty years ago, as syphilitic encephalitis. The smallest arteries are sometimes the seat of obstruction, caused by edgewise or spherical protrusions into their lumen in consequence of said proliferation. The result is, as you can readily see, either partial or complete absence of circulation in the parts syphied by the diseased blood-vessels.

The same thing takes place which you see in advanced age in consequence of sclerosis of large and small blood-vessels all over the system. You know that in old age arterial sclorisis of, say, the blood-vessels of the kidneys, will result in Bright's disease. Chronic diffuse nephritis in old people is nearly always the result of arterial sclerosis, and plugging up of the vessels in consequence of a theromatous deposits into the intima and sometimes into the whole tissue of the artery. It leads to effusion of fluids, to conjestions, to proliferation of cells and the formation of new connective tissue. It is so in many cases of spyhilis of the brain. As a result of destruc-

tion to the arterial circulation there occurs ill nutrition, and even degeneration of certain areas. There may, however, be venous obstruction on the other side, so that cerebral dropsy accompanies the syphilitic encephalitis. If there be a syphiloma of a larger vein, for instance, the basillar, the general dropsy will be easily explained. An anterial sclerosis of only smaller vessels would ex plain only a local condition. It is probable, therefore, that we may have to deal in this case with compression of a vein which has caused general cerebral dropsy. It is difficult to say what may be the exact location of the lesion, but it is very likely near the base, for if it were occlusion of a middle meningeal on one side it would not produce general dropsy to such an extent.

If you were to do anything for the baby the teatment would have to be antisyphilitic and very efficient. It may be that inunctions would be best, or you might daily subcutaneous injection of corrosive sublimate. The injections might be aided further by the administration of calomel.

Lewin, twenty years ago, recommended subcutaneous injections of bichloride of mercury, a number of drops of a solution of four grains to the ounce. I do not advise you to use it so strong, for now and then local irritation and actual abscess has resulted. One or two grains of corrosive sublimate to an ounce of distilled water is strong enough. I should say one grain in an ounce for their baby, of which one should inject twelve or fifteen drops subcutaneously once a day. But I would not be satisfied with that in this case ; I would also give a grain of calomel every day in four doses. The two forms of mercury would probably have a very fair result. But in a case of syphilis as advanced as this one is, changing off into what has been termed the tertiary stage. I would alternate iodide of potassium with calomel, giving, say, one-fourth of a grain of calomel four times a day for a week, then three or four grains of iodide of potassium three times a day for a week, reverting to calomel the third week. The baby's eyes will be examined. It will be presented for your future study.

Periostitis of the Jaw.—You observe in this girl, aged ten years, a swelling over the inferior maxilla of one side. She says it has been present two months and is painful. It appears to be attached to the alveolar processes, is hard to the touch like, as you say, an exostosis. What else might it be ? "It might be a periostitis." Could

that be so hard? "Possibly." Yes, it might be. Last week there was a child here with a hard tumor on the head resulting from a hæmatoma. The periosteum had been lifted up by extravasated blood after a blow. A periostitis resulted, new bone was deposited and formed a hard tumor. There is another reason why I should think this is a case of periostitis and not one of exostosis The latter would not be painful while periostitis, when still active, is always more or less painful. Again, she has bad teeth, and we know that periostitis in the neighborhood of bad teeth is not uncommon. The tooth is tampered with, constant irritation is kept up, perhaps a portion of periosteum is torn loose and new bones is slowly deposited for a long time. But while that may be the explanation of the present case, it is also possible something else may be present in the interior of the tumor. "Sarcoma?" No. "Pus." Certainly; it is very probable that pus would form in connection with a decayed tooth and dead bone. It is possible, however, that you have to deal with periostitis only.

What treatment would you recommend? "Take out the tooth and apply some counter irritant." For instance, tincture of iodine? "I do not think that is nice on the face." There being periostitis, iodide of potassium would be appropriate, and will be prescribed, for if she got nothing she would not return again for such treatment as might be called for at any time.

The decayed tooth at the site of the tumor must also come out. Would there be bone formation there in two months?" O yes. We saw such a case last winter. Bony deposit may take place and be very large in a few weeks. We see that in cephalo-hæmatoma and in fractures. The disappearance of the tumor may be almost as rapid as its formation.

Hereditary Syphilis.—This patient is a baby of eleven weeks. Its mother says that it began to snuffle two weeks ago. The first thing the mother noticed out of the way about it was spots on the skin. It is evidently another case of hereditary infection. She has had three children, the oldest one having been born seven years ago, and the second one two and a half years ago, and there have been no miscarriages.

You will examine the baby's anus, for, as you remember from other cases, fissures of the anus are very common in children suffering from hereditary syphilis. Here it is clean. The skin is also clean except for certain dis-

colorations, which are the characteristic remains of desquamation, especially on the palms and the soles. Undoubtedly the baby had been under treatment before it was brought here. The desquamation has left behind a red, shining surface, and this, together with the coryza, or nasal catarrh with snuffling, constitute the present apparent symptoms of hereditary syphilis. Examination of the vulva and vaginal outlet reveals a condition of things which at first sight looks like gonorrhœa. The vulva is swolen, muco-pus is present, but it appears to be only the result of want of cleanliness.

The treatment will be the same as in the case of syphilitic hydrocephalus which you saw recently, but it is not so urgent.

Sarcoma of the Liver.—This boy, four years old, came here some time ago, when we made the probable diagnosis of fatty liver. At that time I spoke to you of the frequency of fatty liver in children, of superabundance of fat and fatty degeneration. I believe we made a mistake in diagnosis in this case, for the liver instead of growing smaller has been growing larger in spite of treatment. The veins over the abdomen are larger, which would indicate that the impediment to the portal circulation is greater. The outlines of the tumor extend to the left of the median line and below the umbilicus on the right. On palpation there is a feeling of elasticity or semi-fluctuation.

Let us recall some of the points in connection with an enlargement or tumors of the liver. Amyloid liver is connected with amyloid kidney and spleen. The spleen is normal here, so amyloid degeneration of the liver is out of the question. A malarial liver never gets so large as this one without interfering considerably more with nutrition. The child would be very anæmic by this time. There has been no malaria, no intermittent fever. Syphilitic tumors of the liver never grow so large without causing other symptoms. Carcinoma might be so large, but it would not allow the baby to be in such good condition. Its cheeks are red, the conjuctivæ are normal. It might be sarcoma, which may become very large before proving fatal. I have seen sarcomas of the kidneys and spleen more frequently than of the liver. They become very large without interfering very much with the general health. The children will sometimes totter about for a number of years before they become anæmic or die. Hydatids may become very large without interfering

much with the general nutrition, but in a case of this size there would be decided fluctuation, and perhaps the peculiar sensation which echinococcus is apt to give, a peculiar crepitus which is absent here.

What you have here is a tumor which has grown very large lately, and the question is, to which class of tumors which I have mentioned does it belong? It is not carcinoma, it is not fatty degeneration, it is not amyloid degeneration, it is not syphilitic, it is not malarial. It might be an echinococcus; I believe it is not. It is not soft enough; it is not elastic enough; it gives no fluctuation. It might be a sarcoma. Sarcoma will, as a rule, when it begins to grow, grow fast, but not so fast as this one unless there is a peculiar complication; a complication which you find also in rapid growth of uterine fibroids in the adult. Usually a uterine fibroid has a slow, gradual growth, but sometimes it grows very rapidly in consequence of a hæmorrhage taking place into it, or the presence of a cyst in its walls. So, a sarcoma when growing very rapidly gives you a suspicion of not having to deal with uncomplicated sarcoma, but with a cysto-sarcoma. Most sarcomata of the kidney which I have seen—and I have seen a good many of them—were cysto-sarcomata, and some grew very large indeed; some spread all over the opposite side of the abdomen. The swelling in this case gives an impression of semi-fluctuation, which is characteristic for large sarcoma, but not for carcinoma. I have given that as one of the principal symptoms in a number of large renal sarcomata which I have described. My diagnosis of this case would be at present cysto-sarcoma of the liver. The child is in good condition; it has red lips, healthy conjunctiva, and it is only a large sarcoma which would allow a condition of health with so large a tumor. Arsenic in increasing doses is the proper treatment. It may reduce the swelling or at least prevent its further growth.

Delivered April 12th, 1893., (*Stenographic Report.*)

Varicella, Cleft Palate, Adenitis, Sarcoma of the Liver, Rachitic Pains in Hip-Joint.

Varicella.—This boy, three years of age, has been brought here on account of an eruption scattered over the surface. We are told that the spots first came out yesterday. It is one of the milder forms of varicella. The temperature is 99°. Varicella is usually a mild dis-

ease, but sometimes it is not so inoffensive as it is represented to be. The patients are often entirely neglected, and are taken out in all kinds of weather. The trouble with varicella is that you do not know when you are through with it. One crop of the eruption may follow another, and there may be high fever sometimes. There may be complications also. In scarlet fever you expect nephritis in the second or third week or later; you very frequently see acute nephritis after diphtheria; not infrequently in typhoid fever; you see it now and then after measles. So, also, it may occur after varicella. There are now on record in the journals eight or nine cases which I can remember. It is very probable that the complication is much more frequent than this number would indicate, for it is only the last few years that attention has been drawn to the fact that you may have an acute nephritis after varicella—the same form you see after diphtheria or scarlet fever. One of the dangers of varicella is that it is very contagious. It is almost as contagious as measles; it is more so than scarlet fever; perhaps as much so as diphtheria. Therefore when there is one case in the family it is likely to affect all. Therefore, I must say, too, it is necessary to isolate, but in most families in New York City we can not isolate as those of you know who have been inside of a tenement house. The incubation lasts from a few to nineteen days. Vesicles develop in from six to twelve hours. They are more oval than the eruptions of variola, and are not depressed on the top like these; their contents become turbid in from two to three days, and begin to dry after the fourth. Treatment very little. Keep the child in a fairly warm room, 68° to 70°; give, as long as fever lasts, liquid food; see that the child is not exposed; if possible keep others away.

Periostitis from a Decayed Tooth.—This is a girl who was presented last week with a swelling of the lower jaw, two diagnoses having been made by some of our friends, one of exostosis, the other of periostitis. There was also some question whether in the interior of the swelling, although it was hard to the touch, there might not be some pus. The girl has since had the decayed tooth removed, and the swelling has diminished about one-half and is a little softer. There was, however, no pus and no communication between the periostitis and the cavity of the tooth. She will be kept under observation that you may note the gradual absorption of the

new deposit, since the cause of the irritation has been removed.

Cleft Palate.—Boy of about five years. On looking into this boy's mouth you see that the hard palate is fully formed, but is retracted upward to an unusual extent; the soft palate is split; there seems to be a double uvula, one on each side of the median line, but closer inspection shows it to be only a split. In other words, the fissure extends throughout the soft palate and uvula.

At the posterior aspect of the soft palate you see a body that has attracted the attention of pathologists and practitioners largely the last ten or twelve years, particularly since Thorwaldt published his large monograph on the subject with pictures and drawings. It has been called the third tonsil. It frequently consists of a number of parts which in some children grow to such an extent as to constitute an obstruction to respiration, less to deglutition. Besides, where the third tonsil is more or less swollen there is apt to be enlargement of the muciparous follicles in the neighborhood. The enlarged postpharyngeal follicles, or adenoid growths, which have attracted much attention during the last decade, seriously impede respiration in all these cases. They also give rise to acute and chronic catarrh. In a number of cases the respiration is so difficult that the children become mouth breathers; they keep the mouth open constantly; have not only a stupid look but are stupid. Why should a baby, having chronic catarrh of the posterior nares and pharynx, be stupid and remain so? Certainly not because the respiration is interfered with. The reason is that the swelling and infiltration obstructs the circulation in both the blood and lymph vessels, particularly the lymph vsssels. The connection between the lymph vessels at the base of the skull and those at the base of the brain is very close. An analogous condition is seen at the diaphragm where the lymph ducts which perforate this muscle have open stomata above and below. Thus it is that when you have a suppurative perihepatitis or even a simple perihepatitis, or when you have subphrenic abscess, you are apt also to have an empyema. That is due to the simple fact that the lymph vessels below the diaphragm have also an opening on the superior face of the diaphragm.

So when you have an impediment to the circulation at the base of the skull, it is apt to involve the neighboring portion of the brain and produce effusion and exuda-

tion. The meninges and encephalon participating in the process set up by the adenoid growths and accompanying catarrh, accounts for the stupid mental condition remaining a permanent lesion although the catarrh may be only temporary. Thus you see the necessity of removing such hypertrophies. The necessity of doing away with even an ordinary chronic nasal catarrh is a very urgent one. The person with chronic nasal catarrh which has extended down the pharynx, as in nearly every case it does, will never be as bright physically and mentally as one who has free respiration and circulation through the nose. But you need not believe that cutting, scraping or burning is required in every instance. The irritation which is kept up in the tumor by accumulated mucus, and vascula engorgement in the neighborhood, is such as to make the swelling constantly larger. By spraying and washing, with very mild astringents, or only salt water, when continued long, an immediate improvement will take place, and sometimes recovery, particularly with the increasing size of the phayngeal cavity. In this case there is a large body in the median line on the posterior aspect of the pharynx. It is not so annoying here because, fortunately, or unfortunately, the soft palate is divided. Before that soft palate is sewed up it will be necessary to remove this third tonsil. The boy has come here not so much for the purpose of exhibiting himself as to know what can be done for him. He is old enough for an operation now, and the sooner the palate is closed the better it will be for his future articulation. If you were to wait much longer the articulation would never be normal. I have seen cases operated on very young; a few were very bad failures. In children at his age, particularly in boys as intelligent as he is, I do not think the operation would be a difficult one. In the first place, however, let the third tonsil be removed and the whole posterior cavity be cleaned out.

Adenitis.—You observe in this baby (about sixteen months old) that the left ear is full of pus, and that there is considerable swelling below and in front of the lobe. The main condition which seems to demand attention just now lies in front of the ear. In all such cases the first question which arises is, is it the parotid or lymph bodies which are affected? If there were swelling of the parotid to any considerable extent, with fluctuation, it would be larger, and very likely the swelling would not be so diffuse. And it would have raised the lower por-

tion of the ear from the very beginning. Here the swelling is quite diffuse, as you would expect to find it in the complication of adinitis and peri-adinitis. It is very probable there has been an enlargement of one or more lymph bodies for some time; this has been neglected; irritation has been set up, and the result has been suppuration of the interior. You remember from former cases how such suppuration comes to pass. You have to deal with a lymph body which was either tubercular from the beginning or a simple lymph body which swelled, the swelling resulting in proliferation of an immense quantity of gland cells. When these had accumulated to an undue extent they pressed upon each other and caused granular degeneration, and through pyognous germs swept in with circulation, suppuration in the interior. The suppurative process breaking through the walls of the swollen glands, forms a subcutaneous abscess in the surrounding connective tissue.

Is there, in your opinion, any connection between the pus in this child's ear and that within the adinitis and peri-adinitis, if any exists in the same locality? We might be tempted to assume that there has been an otitis media which has perforated the tympanum and caused pus to appear in the ear. But this is not very probable, for there is no history of considerable suffering as there would be in most cases of inflammation of the middle ear. Regarding a possible connection between the pus in the ear and that in the swollen glands, you remember I referred to the fact that in the case of the lymph vessels of the diaphragm there is direct communication between those above and those below. That connection, however, does not exist between the lymphatics within and outside the ear, and it is not to be supposed that in the adult, if pus developed in the glands outside, that it would burst through the bone and enter the ear. It is different, however, in a child, for in it the lower floor of the auditory canal is not yet bony. It is composed of elastic tissue and an abscess could readily perforate it from without. Very often in children suppurating glands in front of and below the ear will burst into the ear before coming to the surface. In the present case I have no doubt but what we can easily increase the amount of pus in the ear by simply pressing on the tumor outside. It proves to be so.

As to treatment, any possible injection into that child's external ear could do no good. What is required is a

large counter opening below and in front of the ear which shall afterwards be kept carefully disinfected. It is not a trifling operation inasmuch as there is a good deal of pus intermixed with inflamed glands which ought to be scraped out when the counter opening is made. If that is done the wound may heal within two or three weeks; if not, suppuration may go on for months, and leave disfiguring scars behind.

Sarcoma of the Liver.—This is the boy whom we presented last week and ran over the points of diagnosis of enlargements of the liver. We reached the conclusion that the boy was suffering from sarcoma of the liver, and eliciting a feeling of semi-fluctuation we concluded that it contained a cyst—that it was cysto-sarcoma. We now introduce the aspirating needle, but obtain no fluid other than blood. This, however, does not prove that fluid is absent. It may be present in a locality which our needle has not reached. No treatment can cure the child. The case is sure to prove fatal.

Rachitic Pains in the Hip-Joint.—This child is two years old, and was first brought to the dispensary a week ago. It is still unable to walk, and the mother says there is something wrong with it because it cries when lifted. It will strike you at once that we have to deal with a rachitic baby. The head is of the square form. The fontanel is still open, although it ought to have closed by the fifteenth month. The epiphyses are large; the baby is two years old and is yet unable to walk. The pain of which the baby complains when the mother takes it up is referred to the right hip. We examined the spine and hip last week. No evidence was found of spondylitis to account for the pain, but we did find some interference with motion in this hip. Flexion, extension and abduction were fair, but abduction was certainly very painful. Whenever you have so much pain on one of the principal movements at the hip-joints there must be some inflammation, either at the site of or in the immediate neighborhood of the joint. You have to deal either with a coxitis or a peri-coxitis. The inflammation may be in the bone, the cartilages, the ligamentous attachments, or in the soft tissues. We found in this case no particular swelling. Abduction was very difficult. When we turned the foot outward the whole pelvis would follow. The folds in the gluteal region indicate some swelling beneath, but the difference between those on the two sides is not very great.

Now, as there is a good deal of pain, a little swelling and considerable limitation of abduction, the question arises, is there a coxitis or pericoxitis? The baby is evidently sick. It is a very thoroughly rachitical baby. You have seen that the epiphyses of the upper extremities are very large. Now, what takes place in the epiphyses of the ulna and radius takes place in the epiphyses and adjoining cartilages of the lower extremities, too. I wish you would, at the next opportunity, look at the femur of the infant. You will find that what is the head and neck of the femur in the adult looks very different in the baby. In the baby the whole mass down to the trochanter is still cartilaginous. It is, in fact, one long mass of epiphyseal tissue. The rachitical process is very apt, when it is so strongly developed as it is in this baby, to take hold of this long epiphysis. And thus it is that this baby is suffering from rachitis in the right femoral epiphysis. The pain is due to absolutely nothing else. The trouble does not constitute what we call coxitis or pericoxitis in later years. It is all this time only a rachitical process, and I believe that if nothing happens to this baby; if we succeed to a considerable extent in relieving the rachitis during the next four or six weeks, the periosteal swelling and the periosteal pain —for that is what it is—will disappear and the baby will escape the danger of coxitis. The treatment will be as usual, animal food, good cow's milk, cereal food, beef-tea, mutton broth, syrup of the iodide of iron, hypophosphites, particularly phosphorus, in the form of the elixir of the national formularly which we have given in most instances of the kind.

Delivered April 19, 1893. (*Stenographic Report.*)

Measles, Sebaceous Cyst, Pericarditis with Pleurisy and Tuberculosis.

Measles.—This child, three years of age, has the sneezing, running from the eyes, and the eruption pertaining to measles. If it were a case of scarlet fever the throat would be more sore, and the tongue more denuded of its epithelium than here, and the eruption would be more equally diffused over the entire body. But the differential points will be referred to again more fully. The temperature in this case is 103,5°. The eruption came out yesterday morning on the face, the sickness having lasted about three days. Regarding the mortality from

this disease, it varies in the city very much from year to year, even when the number of the cases is the same. This is also true of scarlet fever and typhoid fever; even diphtheria will prove rather benign one year and very malignant another. During the thirty-five years that I have observed diphtheria in this city I must say that every other year, or at least every third year, it proves quite malignant. There were years when scarcely a single case survived when submitted to tracheotomy by a physician, who at other times might have saved a good percentage of his patients. I have tracheotomized year after year since 1860, and have had years in which the operation was quite favorable. Then there were other years in which not a single case would recover, simply because the form of diphtheria prevailing at the time was so malignant whether they were or were not complicated with laryngeal stenosis. So in regard to measles, there are years when the results will be extremely favorable, even though the treatment consist almost solely in putting the patient to bed in a room with the temperature at 68° or 70°, not over 72°, and keeping the air moist. These mild cases, however, may be benefited by some cough medicine, say half a teaspoonful of camphorated tincture of opium or less at bed-time, and, if there is a good deal of fever, by a few drops of liquor acetatis ammoniæ and half a drop or a quarter of a drop of the tincture of aconite from time to time. That is all you need in many cases. Twenty, thirty or fifty years ago it was the custom of some to keep such patients perspiring all the time, thus making them very uncomfortable, with the mistaken idea that thereby the eruption would be kept out. It was believed that if the eruption would disappear from the surface it would add to the danger of the case. In a few instances where the eruption was hastily suppressed, an unfavorable result would ensue, but as a matter of clinical experience all cases run their full course without the eruption or with the eruption. So in scarlet fever, we find many cases in which the eruption does not last more than an hour or two. Sometimes you see nephritis, secondary to scarlet fever, where no eruption had been observed. Such children may play about in the street during the course of the fever, and in three or four weeks nephritis will develop.

When the eruption is not sufficient to make the diagnosis perfectly clear, or when it has suddenly disappeared and bad symptoms develop, a hot bath will

usually succeed in bringing it out again. Mustard may be added to the water. Now and then the sudden disappearance of the eruption is attended by collapse. In that event you may give half a grain to two grains of the carbonate of ammonia every half-hour or hour, and now and then a little hot brandy and water. Sometimes when the collapse is very severe, it is necessary to give one or two grains of carbonate of ammonia every fifteen or twenty minutes until eight or ten grains have been taken.

The usual run of cases require very little treatment. In cases accompanied by bronchitis which is likely to terminate in bronchio-pneumonia, the treatment spoken of at former clinics will be proper. Stimulants ought to be given earlier, including heart stimulants, such as digitalis, strophanthus and sparteine. In the case before us the child ought to be put to bed and the throat watched for possible development of diphtheria. If no membrane appear the child will, I think, do perfectly well if kept on liquid food, and perhaps given a dose of opium at night.

Sebaceous Cyst.—Our next case is that of a child of thirteen months, which has a swelling at the outer angle of the eye. What may it be? "Possibly it is a sebaceous cyst." "It seems to me that it is not a sebaceous cyst." "It impresses me as being a lipoma." "Can it be a sarcoma?" The tumor is circumscribed, and circumscribed lipoma in the young acts exactly as it does in the adult. It has a peculiar puckery feel. It is not uniform and smooth. In this case the tumor seems to be smooth. The mother says it has been present for ten months, and it is quite possible since the child is only thirteen months old, that it was present at birth. I believe it is not a lipoma for the reason, as just stated, that it is quite smooth; it has not the peculiar grooving of the circumscribed lipoma. Lipoma in the young are of two kinds, the diffuse and the circumscribed. In the diffuse form there is what seems to be an immense accumulation of fat, so that if you have, for instance, lipoma of the upper arm there is a large field of fat which is not capsulated at all. It cannot be enucleated. It is different with circumscribed lipoma, for when that is cut down upon, it can be enucleated and taken out entirely. Will some of the rest of you express an opinion? "I think it is a sebaceous cyst?" "I do not think it can be a sebaceous cyst, for it is not in the

skin." Sebaceous cysts are not limited to the skin. They involve the skin only when they become very large and the capsule becomes inflamed and adheres to the integument. Remember how such cysts originate. They develop from sebaceous follicles. At the age of puberty you see so-called black-heads, which are nothing but sebaceous follicles, the contents of which have not been expelled in time, but have accumulated, become cheesy, and are covered on the outside with foreign matter. The changed color is due to changed epithelium and dirt. So sebaceous cysts are in the skin certainly, but when they are congenital they behave differently. The condition must be, as a rule, taken for a congenital affair. Even where it is not noticed until a time after birth, it is still, in most cases, congenital. This tumor has grown slowly the last ten months. As it was not painful, the mother did not notice it until the size was sufficient to attract her attention. Sebaceous follicles develop about the middle of intraterine life. At that time the epithelium is thrown out in large masses, is still embryonal and quite soft, but sebaceous follicles are very numerous and very large, and remain so throughout the whole of fœtal life. Thus it is that about the forehead and head you are apt to see at birth and in the infant a large amount of glossy fat.

Many children have the condition known as seborrhœa, blackish or yellowish accumulation upon the scalp. It is nothing else but a large mass of foreign material, with epithelium and sebaceous secretion. The largest development of sebaceous follicles and glandular formation in the skin takes place during the second half of fœtal life, as I said before. It continues through a good part of infancy and begins again about the age of puberty. About the age of puberty, especially in those persons in whom the elasticity of the skin leaves much to be desired, the accumulation of black-heads is apt to prove a great annoyance. You see them in run-down girls and boys, and in those in whom the innervation is for any reason reduced. Boys and girls addicted to masturbation are apt to have the so-called black-heads because of defective innervation produced by the habit.

When there are a great many sebaceous follicles in process of formation in the skin, and before the cutis and the epidermis have reached that thickness from development to which they attain in later life, some of the follicles are liable to become imbedded in the cutis, and

to become covered by the epidermis and undergo cystic degeneration. Thus it is that you find such cysts deeply situated in the integument or even below it, so that the skin can be elevated entirely above and away from the tumor. Later, however, there may be inflammation with adhesion to the overlying integument. The scalp is likely to be the place of development of sebaceous follicles, especially in old people. In children they are most commonly seen in the neighborhood of the eyebrows, on the lids, not so infrequently on the head, now and then on the cheeks.

What should be the treatment? "I think the best plan would be to excise the tumor." Yes, that is the only treatment. It will not do to wait, for the tumor will grow, adhesion will take place, after a while there will be suppuration, and then it will be more difficult to remove it without deformity. It ought to be removed very soon.

Pericarditis, Pleuritis, Beginning Tuberculosis.—The boy before us is thirteen years of age. Since the middle of February he had a cough, and for about a month a sharp pain in the mammary region which prevented full inspiration. Later he also had pain in the posterior region of the chest and shoulders. These symptoms were not constant. He remained in bed two weeks during the first part of his illness and has not been well since. The cough was short and dry. The appetite is only fair; rest at night poor. Respirations are thirty-six; pulse 144, and weak. A week ago the temperature was 102° in the rectum. There is a slight scoliosis; the left shoulder is a little higher than the right. You will also notice that the chest is not well formed. The vertebral column is not sufficiently flexible and is curved outward between the shoulders. There is flatness below the cluvicle, a rachitical projection of the sternum, with a marked degree of so-called pigeon breast. That is to say, the cartilages of the ribs have been pushed inwards and the sides of the chest have been flattened. Thatwith the bulging sternum points to rickets during the first year.

The boy complains of no pain now. There is dulness over the left breast anteriorly from the manubrium sterni downwards. There is more dulness over the lower part of the chest at the left side than at the right side where the liver should be located. There is also dulness over and below the scapula of the left side behind. A tympanitic sound is elicited by strong percussion down on

the left side anteriorly, derived from the proximity of the stomach, while light percussion elicits dulness. There is dulness more specially over the middle of the left side. That may be due to some change in the pleura or to some change in the lungs.

Imagine it to be due to chronic pneumonia; you would then expect to hear more or less bronchial respiration, and that near the surface. If you were to have him cough or talk you would have to hear bronchophony. You would hear the voice loudly transmitted to your ear as it rested on the chest directly over the indurated tissue. But if you had to deal with dulness which depended upon the presence of fluid in the pleural cavity or on thickening of the pleura on account of pleurisy it would be different. There would then be a greater distance between your ear and the seat of the voice, and the voice would be diminished instead of increased. So if you have dulness, and diminished respiration and diminished voice, the conclusion is that you have to deal with some form of pleurisy. The voice is much louder in this case on the right side than on the left. If we should assume it to be normal on the right side, it must be diminished on the left, and the supposition would be that we had to deal with pleurisy pure and simple. But it is possible that we should find here a complication, and I may as well add at once that the voice sound on the right side is too loud, for which, of course, there must be some reason. Either the bronchi are dilated, or they are normal themselves though surrounded by indurated tissue, this being due to either a chronic pneumonia or tubercular infiltration. We discover also on the left side of the sternum a sudden transition from a nearly normal percussion note to marked dulness just above the nipple. It would seem as though pleural thickening would have ended less abruptly. Can you conceive of what might be the cause of such rapid transition in the percussion note in this line, especially when it is not found in the corresponding locality posteriorly?

"Retraction of the lung." But there is about as much respiratory murmur below as above. Granting that there is either retraction of the lung or thickening, why should it be in this line? "Sacculated pleurisy?" Capsulated pleuritic effusion would greatly explain our findings, but some other reason seems to me to be more probable in this case. "He might have had pneumonia in the lower lobe of the left lung and pleuritic effusion filling up the

corresponding region." But why is it anterior and not posterior? Most pleurisies are posterior, and when both posterior and anterior they are most marked as a rule posteriorly. "Adhesion to the chest wall." That is always so, for the pleura is adherent to the chest wall. Or do you mean that the lung is attached? It usually is adherent after a severe attack of pleurisy, and the pleura itself becomes thicker even than my finger sometimes. That is why the voice and respiration murmur are so distant.

But there is still another explanation. "There might have been pericarditis." Exactly. There was a pleurisy and at the same time a pericarditis with adhesion of the two membranes. That is what makes the transition note so very sudden just at the pericardial line.

You have, then, a pericardio-pleuritis of the left side which has run its full course, and which has caused diminished respiration and some dulness. Then you have bronchophony over the upper lobe of the right side, which means infiltration. If you would examine the expectoration and find tubercle bacilii you would make the diagnosis of tuberculosis at once. Or, if you could obtain a family history of tuberculosis, you would think tuberculosis of the right side very probable.

It is probable that at the time the boy had pericardio-pleuritis on the left side; he also had pleuro-pneumonia, or pneumonia, on the right side, which has been followed by tubercular changes. And very probably his pericarditis and pleurisy are both tuberculous.

What should be done for the boy? The thickening of the pleura he will carry through life. You will find this difference of dulness, with even the same sudden transition, ten or thirty years from now, and a good observer, examining him after a lapse of these years, would make the diagnosis of what happened to him two months ago. The retraction which has taken place in that lung will probably remain exactly as it is, unless, indeed, there would be on the right side, two or three months hence, even a greater hollow than exists to-day. The increase of the voice on the right side is due either to the fact that the pulmonary tissue is indurated, leaving the bronchial tubes of full size, or by contracting, has drawn upon their walls, enlarging their caliber, causing dilatation (bronchiectasis). Bronchiectasis is not infrequently the result of such a chronic inflammation. Remember what I told you some time ago, that we have to distin-

guish between three forms of pneumonia—the lobular, lobar and the interstitial forms. We seldom find lobular or lobar pneumonias without some interstitial infiltration, but we do find some pneumonias which are purely interstitial. Such cases as a rule run a very long course, with protracted fever, and little, if any, cough and expectoration, not the typical regular course of lobar pneumonia. The pulmonary tissue swells first by the newly formed cellular tissue; after a while the new connective tissue contracts upon itself, or cicatrizes and renders the lung tissue dense. It is the same process which takes place in the cirrhotic liver. When the lung contracts it pulls upon the walls of the bronchial tubes and gradually enlarges their lumen, causing either a sacculated or an extensive dilatation. Such a sacculated dilatation will frequently behave like a tubercular cavity. Mucus will accumulate in it, become rancid and purulent; now and then a fit of coughing will cause a large amount of fœtid muco-pus to be thrown out; then the cavity will again be filled. Thus, on physical examination a cavity is found to appear and disappear.

Again we ask the question, what should be done for the boy? If you let him go as he is, the lung will go on contracting. Pulmonary gymnastics ought to be resorted to. The boy ought to be out a good deal. He ought to be made to understand what the object is. He ought to inhale very freely. He ought to sneeze, too; he ought to cough, so that by expelling the air from the lungs freely he will inhale so much the more easily. He ought to play a good deal. He ought to run about some every day. He ought to be made to run to near exhaustion in order to fill the lungs to their utmost capacity. In that way it is possible that he will save more pulmonary tissue and breathing area than if he would neglect those things. Then he ought to attend better to his skin. Unless the skin is kept clean and stimulated the circulation will not be lively enough. Without good cutaneous circulation that of the whole body will stagnate. He ought to have a cold wash once or twice every day, followed by a good rubbing. The cutaneous circulation being thus made more lively, pulmonary circulation would also be freer. Remember what an area the skin covers. There are seven or eight square feet of surface on a boy of his size, and the number of blood-vessels going thereto is immense. There is a great lake of blood in and just under his skin, and by stimulating the ex-

ternal circulation by rubbing him and using cold water, or alcohol and water, you will improve the condition of the thoracic organs.

The bronchophony in this case is a very important symptom. In a great many cases of incipient tuberculosis you never find any tubal respiration, but you do find bronchophony. I never finish an examination of such patients without having them count, or talk, and am very often enabled thereby to find evidence of infiltration in a doubtful lung when other symptoms fail.

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